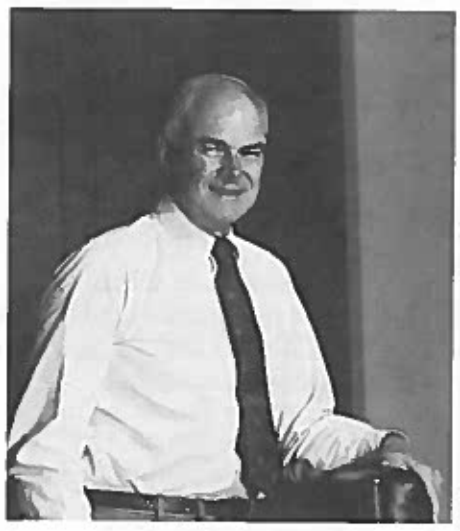
# GrummanWorld

Volume 6, Number 22 | Our Employees Are Our Major Shareholders | December 18, 1987


## A Letter From The Chairman

# *'We Own Grumman, We Make It Better, We Carve Its Future'*



You'll see something new on the top of this special issue of *Grumman World*, under the masthead. It says, "Our employees are our major shareholders." You'll see these words printed on each issue from now on, and in many other places, too.

It's more than a slogan. It's a reminder to each one of us about what sets this company apart: it's *ours*. We own it, we make it better, we carve its future. We do it for each other and for ourselves. We should never lose sight of that.

And that's the reason for a special annual report to that very important group of shareholders, Grumman employees. It's different from the annual report we issue in March to *all* of our shareholders, which is an accounting of our financial results. As such, that report provides a rather narrow view of Grumman because it doesn't talk about the people who make the company work.

But in these pages, we honor the people who have done so much to make this a great year for Grumman.

We received 32 patents in 1987. Grumman inventors came up with superb developments — some of the best things we've seen in years.

Grummanites took more than 5,000 courses this year under tuition reimbursement and Training department programs. They came up with 1,347 Project Sterling suggestions, saving the company over $11 million; Quality Circle members saved a half million.

We delivered 43 aircraft this year, about 13,000 trucks, a couple of hundred emergency vehicles and 19,000 boats. We made important inroads in our electronics work, especially in the production of gallium arsenide circuits. We are turning out at least 95 Long Life Vehicles a day for the U.S. Postal Service. We delivered the first IFTE (Intermediate Forward Test Equipment) unit to the Army. Joint STARS is reaching all its milestones.

Most of our major programs are in good shape. The E-2C, EA-6B and C-2 are on target; the F-14D development program is right on schedule; but it may be that the A-6F won't be funded. That would be especially disheartening, because the A-6F promised to be a spectacularly capable aircraft.

Just a couple of weeks ago we learned that we are on a winning team for Work Package One of the Space Station. Teamed with Boeing, we will work on the crew's living quarters. As exciting as that news was, we were disappointed that we didn't win a piece of Work Package Two as well. We know, of course, that we can't win them all — but we work hard to win each one, and any time we suffer a loss, it hurts.

The Space Station Program Support contract will keep us busy for years. Like Joint STARS, this was such a major win that we organized a new division just to handle it. We will be helping NASA to manage, coordinate and integrate all phases of Space Station production until the station has been operating in space for a year.

In 1987, we became a more international company. We have an aircraft modification agreement with the People's Republic of China for their F-8 aircraft. In an agreement with Taiwan, we will provide kits to re-engine and update the avionic and weapons systems of their 32 Grumman S-2 Trackers. We delivered three Hawkeyes to Egypt, and continued work on the data reduction system for Rolls-Royce in England.

***'Grumman people act as if they own the place. That's because they do.'***

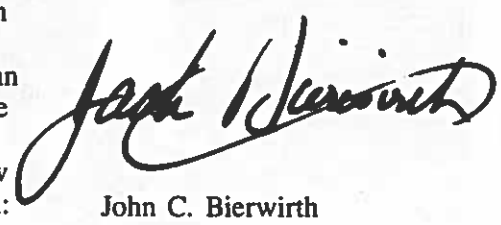
In addition, we listed Grumman stock on the Tokyo Stock Exchange in December. Much of our international growth in the past few years has been in the Pacific Basin: Japan and her neighbors are an important market for us. Our listing on the Tokyo exchange demonstrates our commitment to this area, and gives us access to Japanese financial markets.

In 1987, we looked for ways to do things better. We established a new Office of Corporate Technology to better organize and focus our considerable technological talents. We started a new program to take a closer look at quality; this effort will extend through every area in our company, and we'll be talking more about it in the coming months.

For several years we have been investing for the future. We have the programs and the technologies and the facilities that a strong, healthy future will demand — but we will have to manage our resources very closely, fighting hard to keep everything on the right track. The job is doubly difficult as we struggle in an environment of increased competition and governmental pressures.

During the past 12 months, Grummanites have shown that they are up for the fight. They are spirited, innovative, tough-minded and determined: in fact, Grumman people act as if they own the place.

That's because they do.■



John C. Bierwirth
Grumman Corporation Chairman

**Tough Terrain.** *In the Corporate Research Center, research engineer Bob Waffenschmidt examines the computer version of a terrain map. The map information is used by an artificial intelligence — based computer program to help a pilot avoid areas of danger on the path to his target. This artificial intelligence program constantly reevaluates the path and advises the pilot.*

## *What's Inside*


**How It All Fits Together - P. 2**

**An Interview With John O'Brien - P. 4**

**Financial Report - P. 6**

**Slew Of Schedules - P. 7**

**Bevy Of Benefits - P. 8**

**It Pays To Save With EIP - P. 9**

**Grummanites Voice Their Opinions - P. 10**

**Putting Grumman On The Map - P. 12**

**Technology In Motion - P. 14**

**Happy Customers - P. 15**

**'Being Ethical Is Good Business' - P. 16**

**LLV Crew Takes Stock Of 1987 - P. 17**

**Five Technologies To Dazzle You - P. 18**

**We're Faster And More Efficient - P. 19**

**A Good Corporate Citizen - P. 21**

**Sharing The Knowledge - P. 22**

**Grummanites Hit The Books - P. 23**

# How It All Fits Together

## Grumman Corporation

**Office Of The Chairman**
Chairman Jack Bierwirth
President John O'Brien
Vice Chairman-Finance Bob Freese
Vice Chairman-Technology Will Bischoff
Vice Chairman-Development Dan Huebner

**Business:** Oversees 11 Grumman divisions. Major departments include Washington Operations, Corporate Development, Secretary and Personnel, Finance and Treasurer, Office of Corporate Technology, Product Integrity, Public Affairs, and Audit.

**Location:** Headquartered in Bethpage, L.I.

**Work Force:** 244 people

**Subsidiaries:** Grumman Credit, Grumman International, Paumanock Development, Paumanock Insurance, Grumman Ohio and Grumman Foreign Sales.
**Work Force:** 79 people

## Aerostructures

*Don Schlegel, President*

**Business:** Subcontractor in the development, design, manufacture and test of aircraft and space vehicle components and systems. In addition, modifies and supports out-of-production aircraft. Manufacturing work performed by Aircraft Systems' Bethpage Operations, Stuart (Fla.) Operations, Glen Arm (Md.), and Milledgeville (Ga.) Operations.

**Location:** Headquartered in Melville, L.I.

**Work Force:** 311 people

**Multifaceted.** *Gerry Yurchison (L) and Norm Naps are among the Grummanites in Aerostructures who work on major subcontract work such as the V-22 all-composite empennage.*

**Delivering.** *Dale Grimm (R) and Bob Overdorf check an LLV at Montgomery.*

## Allied

*Ron Peterson, President*

**Business:** Producer of specialty vehicles and recreational marine products. Contains four operating units: Grumman Boats, Emergency Products (fire trucks), Long Life Vehicle (postal vehicle), and Olson (truck bodies).

**Location:** Headquartered in Bohemia, L.I., with facilities in Marathon, N.Y., and Arkadelphia, Ark. — boats; Roanoke and Vinton, Va. — fire trucks; Montgomery, Pa. — LLV; and Sturgis, Mich. Mayfield, Pa. Sherman (Texas), and Tulare (Calif.) — truck bodies.

**Work Force:** 2,210

**Getting Things Together.** *Detail parts are taken to Building 2 in Bethpage where Mel Perdue and others build the subassemblies for Grumman aircraft.*

## Aircraft Systems

*Renso Caporali, President*

**Business:** Designer and builder of military aircraft and aircraft systems. Includes systems integration, operations analysis, preliminary design and development, and the management of advanced and production programs. Major operational elements include engineering, manufacturing, testing and product support. Functions as both a prime systems contractor and as a major subcontractor in teaming arrangements.

**Location:** Headquartered in Bethpage, L.I., with facilities in Melville and Calverton, L.I.; Stuart, Fla.; Glen Arm, Maryland; and Milledgeville, Ga.

**Work Force:** 17,961 people

## Data Systems

*Bob Myers, President*

**Business:** Supplier of computing products and information systems, plus full range of maintenance and services support. Also operates major business and scientific computer facilities, and is primary provider of telecommunications and computer services and resources for all Grumman divisions.

**Location:** Headquartered in Bethpage, L.I., with facilities in Woodbury and Holtsville, L.I., and McLean, Va.

**Work Force:** 2,705 people

**Answers.** *Tom Buchalski and the other members of Data Systems keep computers humming in the headquarters operations center.*

## Electronics Systems

*Bob Nafis, President*

**Business:** Designer and producer of high-technology electronic components, equipment, and systems for the military and commercial sectors.

**Location:** Headquartered in Bethpage, L.I., with facilities in Melville, Bohemia, and Great River, L.I.; Houston, Texas; Plainsboro, N.J.; Benton Park, Pa.; and Salisbury, Md.

**Work Force:** 3,290 people

**Proven.** *Grummanites such as Soling Mark in Melville, Long Island, build advanced test equipment for the military.*

# Melbourne Systems

*Al Verderosa, President*

**Business:** Prime contractor for the Joint Surveillance Target Attack Radar System (Joint STARS), a system being developed for the Air Force and the Army.

**Location:** Headquartered in Melbourne, Fla.; a small core works on Long Island.

**Work Force:** 972 people

**The Inside Story.** *Joint STARS will run on software. Producing those thousands of lines of code falls to Al Kempski and others in Melbourne.*

**Fountain Of Youth.** *Tracy Green and other Grummanites here use technology and craftsmanship to put new life into veteran aircraft.*

# St. Augustine

*Joe Walter, President*

**Business:** Modifies, overhauls and maintains both Grummman and other manufacturers' aircraft.

**Location:** St. Augustine, Fla.

**Work Force:** 1,063 people

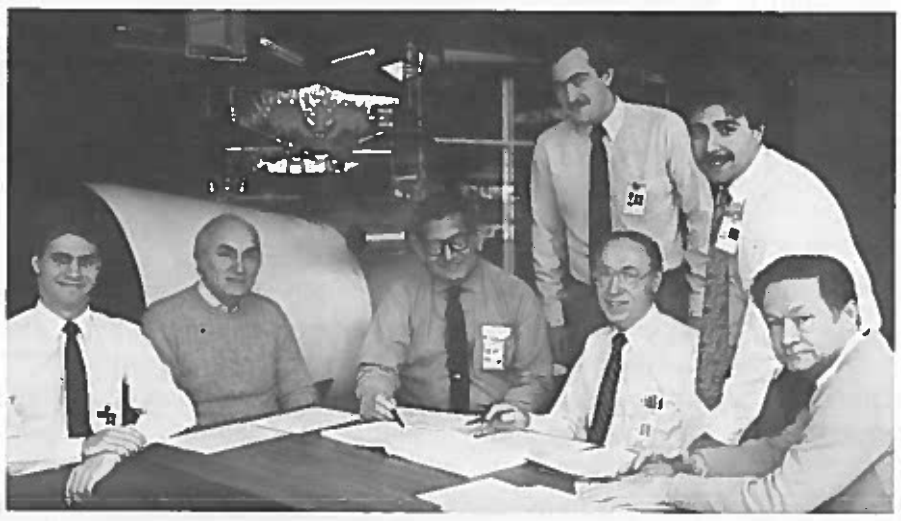
# Corporate Services

**Business:** Provides commonly used services to other divisions and companies in Grumman Corporation. Includes Legal, Security, Facilities, Transportation, Corporate Procurement, Business Operations, and Personnel Administrative Services.

**Location:** Headquartered in Bethpage, L.I.

**Work Force:** 3,199 people

**Fuel.** *In Corporate Services, people such as Ginny Farragher do everything from feeding Grummanites to fixing the air conditioning.*



**Further Developments.** *Among the Grummanites working on the Boost Surveillance and Tracking System (BSTS) program are (L to R, seated) Jim Nicolard, Matt Maccitio, Ed Ramirez, Bob Catenaro, Lenny McDonough, (standing) Gerard Loughran, and Anthony Bacarella.*

# Space Systems

*Alex Alexandrovich, President*

**Business:** Designer and builder of space vehicles and systems for civil and military use. Prime customers are NASA and the U.S. Air Force. Serves as both prime contractor and major subcontractor.

**Location:** Headquartered in Bethpage, L.I., with facilities in Houston, Texas; and Irvine, Calif.

**Work Force:** 526 people

# Space Station Program Support

*Fred Haise, President*

**Business:** As space station program support contractor, it is assisting NASA in the overall integration of the project. It is also developing test requirements for verification, assembly and overall integration of space station components.

**Location:** Headquartered in Reston, Virginia, with offices at major NASA sites.

**Work Force:** 188 people

**Helping NASA.** *Skip Smith (foreground) and George Moore are on the Grumman team in Virginia that is helping NASA put the pieces of the Space Station together.*

**On The Job.** *You'll find Technical Services people such as (from L) Bill Ebert and Rich Weisemiller on launch complex or flight line.*

# Technical Services

*Wiley Williams, President*

**Business:** Provides service, overhaul, maintenance, repair and testing of aircraft, marine and space vehicles, along with their related support systems. Subcontractor on the Shuttle Processing Contract.

**Location:** Headquartered in Titusville, Fla.; with installations at Kennedy Space Center, Fla.; and military posts around the world.

**Work Force:** 1,592 people

## An Interview With John O'Brien

# *'Grumman People Have A Very Unusual Habit Of Getting More Determined And Working Smarter When The Going Gets Tough'*

*Recently, Grumman President John O'Brien talked with* Grumman World *about the company's performance in 1987 and what lies ahead in 1988. Excerpts from that interview follow:*

**Grumman World:** *Last December, you said 1987 was going to be a pressure cooker year. Was it?*

**John O'Brien:** Yes, new laws and regulations about how we finance our business continued to change, and pressures on the defense community and the defense budget mounted. Our people continued to be concerned about their jobs. We had several major development programs going on at the same time. All this put tremendous pressure on us.

**GW:** *What kind of year will 1988 be?*

**JOB:** My forecast for 1988 is that the pressure will be turned up even more.

**GW:** *What is the company's strength going into 1988?*

**JOB:** Our biggest strength has been, continues to be and always will be our loyal and dedicated people. Grumman people have a very unusual habit of getting more determined and working smarter when the going gets tough.

I see our production work force going like gangbusters to get our products out. People willingly work overtime when required. I know of one young fellow in Calverton who worked 24 straight hours to make sure F-14 No. 558 flew when it was supposed to fly — a matter of great importance to the company. That's the kind of strength we have. I think that strength will keep us going.

**GW:** *What is the biggest obstacle we will face in 1988?*

**JOB:** Resistance to change. The biggest difficulty we have as a large body of people is accepting change. Despite the fact that we are in a business where we sell change, our people are reluctant to accept change. Some look at the expansion of our business in other directions as an attempt to walk away from the aircraft business. That is not true. Some look at our redistributing work as an attempt to move off Long Island. That is simply not true, either.

Despite our efforts to explain, and despite our visible demonstration by building new facilities on Long Island, the resistance to change creates a worry. So we get the continuing question: Is Grumman moving off Long Island? The continuing answer is no.

Problems like that are not unusual in a large corporation. Because whether we like to admit it or not, we are a bureaucracy. I work hard on communication yet it's obvious to me that communication doesn't cascade throughout the organization.

**GW:** *How do you change that?*

**JOB:** We must continue to communicate the facts and get people to suggest ways we can do things better. We have to try to eliminate the bad habits that we have developed over the years, such as taking too much time in acting on suggestions. And we have to emphasize the good things that we do as a corporation. It's an ongoing process.

**GW:** *What other challenges do we face next year?*

**JOB:** We must continue to be successful in our development programs. Given a reasonable continuation of the defense funding with the new procurement rules, our biggest job will be cash management. The need to manage that cash stringently under the new rules naturally inhibits us from doing some things that we might otherwise do — such as expanding our research-and-development efforts.

**'Our biggest job will be cash management.'**

To be competitive, we continually try to adjust our production work, so we can submit a competitive cost-per-hour price. We are working very hard to balance our efforts to stay competitive — and keep our work force healthy on Long Island. We have a tremendous investment in assets here, and Grumman people are our most important asset.

**Ahead Of Its Time.** *The first F-14D development aircraft flew late last month — several months ahead of schedule. Said Grumman President John O'Brien: 'The engineering department did a superb job. I'm optimistic that the F-14D is going to meet all of its goals on schedule. I believe the customer is very pleased with our progress.'*

On the other hand, it's very difficult to bring young people into the work force here, because housing is so expensive. Unless they have grown up here and live with their families, it's hard to attract them. And then when they get married, have children and want to buy their own homes, it's hard to keep them.

**'We have to accept change and use it to our advantage instead of resisting it.'**

**GW:** *So the cash crunch will continue in 1988?*

**JOB:** Definitely. There are continuing changes in progress payment schedules. New tax laws changed how we record our taxes and that increased our borrowing requirements dramatically — more than any additional programs right now. When you put new programs on top of it you multiply the problem.

**GW:** *When will the cash shortage end?*

**JOB:** That's almost impossible to predict. Because as you build your business, you continue to demand cash and you continue to raise the cash.

However, the cash crunch will remain as long as the government insists that the defense industry accept progress payments that bear no relationship to interest rates — which is unfair. It will remain as long as the government imposes tax laws on us which may require us to pay taxes before we even earn the money.

So until those laws are better balanced with the business, we will continue to have a cash problem — along with most of our competitors and associates in the business. It's manageable in my opinion but it means that we have to be extremely careful.

**GW:** *How is the F-14D development program progressing?*

**JOB:** The F-14A(PLUS) was accepted just this month. The first F-14D development airplane just flew — and it was several months ahead of schedule. The technical difficulties we were having this time last year have been pretty well ironed out. The engineering department did a superb job.

I'm optimistic that the F-14D is going to meet all of its goals on schedule. I believe the customer is very pleased with our progress.

**GW:** *What about the A-6F?*

**JOB:** As of this interview, the A-6F is fully funded in the House mark-up, but zeroed in the Senate. I still remain optimistic. However, the A-6E is in the Senate mark-up which recognizes that the Navy needs its attack capability. Our battle after this fiscal year will be to keep the A-6E in the budget in the ensuing fiscal years where we see even more defense budget pressures from the Congress.

If there were to be no A-6F development money in the budget, the Navy would have no choice but to terminate our contract. Therefore, with some exceptions, the development funds they paid us would have been wasted. And so would the millions of dollars of capital investment that we made.

That is one of the pitfalls of annual defense budgets and annual defense planning. If the automobile companies operated this way, they'd be bankrupt in five years. Yet the federal government refuses to go to multi-year budgets or plans. There are many studies that say it would be more cost effective — but Congress continues to resist it.

**'The quality of the product we deliver has not slipped.'**

**GW:** *What about the people working on the A-6F?*

**JOB:** A large number would continue to work on A-6E production. As for engineering, we are awaiting a very important decision on the contract to design the successor for the A-6. If we win, many additional people would be working on that program.

**GW:** *Grumman has built a reputation as a producer of top quality products. Is our image still sterling or is it becoming tarnished?*

**JOB:** The quality of the product we deliver has not slipped. We hear about wing cracks and skin cracks in A-6s and E-2s but the fact is in most cases, the use of those aircraft is in excess of the design criteria. And the loads placed on those aircraft are beyond the original design. They're working harder and longer than they were intended to. The Navy fully acknowledges that. But I can say our delivered products are the same quality that earned Grumman its sterling reputation.

However, our rework rate has gotten too high. This indicates that we have operating problems, be it in engineering design, tooling design, newly trained work force or any combination.

We have a task to do there. We must improve the quality of the product that we're building right from the start — from design engineering through final assembly. That's what quality is all about. That's how you improve even further the quality of the end product.

**GW:** *Is there need for improvement in office areas too?*

**JOB:** Absolutely. I see letters that are done on typewriters or word processors that have an automatic spell check and I still find misspellings. That's a quality problem — and I think that's just as important as rework in the shop. A letter with a misspelled word in it sent to the customer indicates a careless company.

Next year, Grumman will conduct a training program to focus on quality. Everyone in the company will participate — not just engineering and production. Every area of Grumman must improve — from Contracts to Personnel to Facilities.

**GW:** *What must be done now to make Grumman viable for the '90s?*

**JOB:** We have to win some of the remaining competitions that are out there. We have to continue to deliver quality products to our customers. We have to continue to become more innovative and more efficient. We have to learn to work in the new defense environment. That means we have to accept change and use it to our advantage instead of resisting it — instead of letting it become someone else's advantage.

**'Grumman people are our most important asset.'**

**GW:** *You were elected president of Grumman in the summer of 1986. Have you changed your approach to your job since then?*

**JOB:** I don't think so, yet I'm not sure my associates would agree with me. I do get involved in greater depth than some of them appreciate, but that's my style.

I don't think I've changed. I'm obviously very proud of the job I hold. And I'm also proud of what Grumman people have done. They've made us very respected in the industry.

**GW:** *How would you describe your management style?*

**JOB:** I would say very open, very accessible. I can be demanding, but at the same time, I try to be flexible.

**GW:** *What qualities do you like to see in Grumman people?*

**JOB:** Initiative. Assertiveness. A certain amount of cynicism in looking at the outside world and what's being offered to us. A questioning attitude. Honesty and integrity in everything they do. Sensitivity to their fellow workers. And loyalty to their company.

**GW:** *Do you like your job?*

**JOB:** I love it.■

# How Much Money We Earned

Results for the first nine months of each year

| Year | Net Sales | Net Income |
|---|---|---|
| **1987** | **$2,427,972,000** | **$39,713,000** |
| 1986 | $2,571,272,000 | $53,867,000 |
| 1985 | $2,266,952,000 | $58,410,000 |

**Business Jets.** *Ismael Devalle and Susan West are part of the Stuart Operations team that builds the thrust reversers/nacelles for the Gulfstream IV and F-100.*

# It All Adds Up In Aerostructures

In 1987, the Aerostructures Division won several new development programs.

One significant win — the S-2T update program for the Republic of China Air Force — marked Grumman's re-entry into the anti-submarine warfare market. Under this program, Grumman will provide kits to re-engine and update avionic and weapons systems for 32 aircraft. The S-2 was originally built by Grumman during the 1950s. Further opportunities exist with a number of other countries including Singapore, Thailand, Brazil, Greece and Canada for similar programs.

Aerostructures also won a contract for the C-17 composite control surfaces from McDonnell Douglas. The full-scale development contract and follow-ons could lead to a program of 210 aircraft with production starting in the early 1990s.

Grummanites in Aircraft Systems' Stuart Operations, Florida, built the 200th shipset for the Boeing 767 center wing section program. The team also received Boeing's "Pride-in-Excellence" award for the third year in a row.

People at Stuart also built the first four empennages for Aerostructures' Bell-Boeing V-22 Osprey program. Milledgeville Operations in Georgia builds V-22 parts. The competition for the production contracts on the V-22 will be held next year.

Seventy-six shipsets of Peacekeeper missile shrouds were built by Grummanites in Bethpage for Aerostructures. The division has received a follow-on order for an additional 23 shipsets.

Aerostructures also won a contract this year to develop and produce the lightweight, composite translating thrust reverser cowls for GE's CF6-80C2 engine. The initial contract is for 210 units.

The business jet nacelle/thrust reverser programs reached a milestone in 1987 when the spares support program went over the $10 million mark. Stuart Operations builds these parts for Aerostructures.

This year also marked the first full year of production on the G-IV/F-100 program at Stuart. Fifty and 22 shipsets of nacelles/thrust reversers have been delivered to Gulfstream and Fokker, respectively. The contract calls for total delivery of 545 shipsets over the next few years to these two customers.■

**Dotting The I's, Crossing The T's.** *Contracts people wrap up paperwork for 1987. They are (L to R) Iris Golio, Paul Wolff, Rick Baker, Al Abruzzo, and Sally Couluris.*

**Part Of It All.** *In Central Storage and Retrieval in Building 3, Rick Perkins of Aircraft Systems gets parts for fellow Grummanites on the production floor.*

## From Fine Print To Heavy Metal

Building the complex products and providing the high tech services that Grumman does means lots of activity.

A bellweather of that is Grumman's Contracts Department. By year end, close to 4,000 proposals throughout all company divisions will have been negotiated, for a total of about $2.5 billion in business. The proposals cover products ranging from replenishment of spares to sophisticated weapon systems, and amounts of less than $1,000 to hundreds of millions.

The work doesn't end with a successful contract negotiation. The Contracts people administer close to 1,000 active contracts, ensuring Grumman complies with their terms and coordinating any necessary changes.

When the contracts call for building aircraft that have 40-50,000 parts, Grummanites have to buy, move and process lots of material.

This year, just for the military programs, Grumman bought some 2.4 millon pounds of aluminum, 30,000 pounds of carbon steel, 404,000 pounds of steel alloys and 122,000 pounds of stainless steel.

How does it all come together? With rivets — 39,000 pounds of them.■

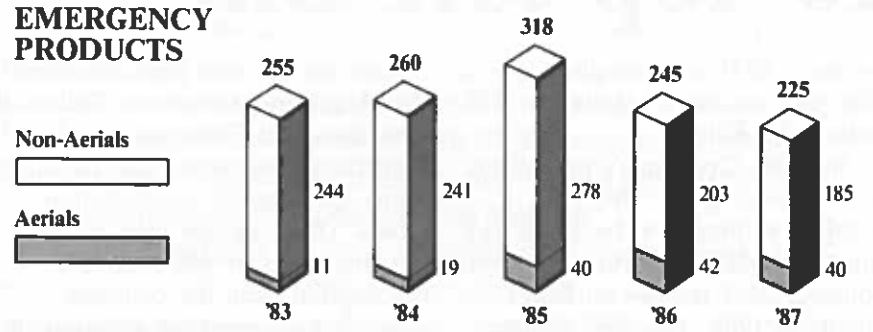
# The Overseas Outlook

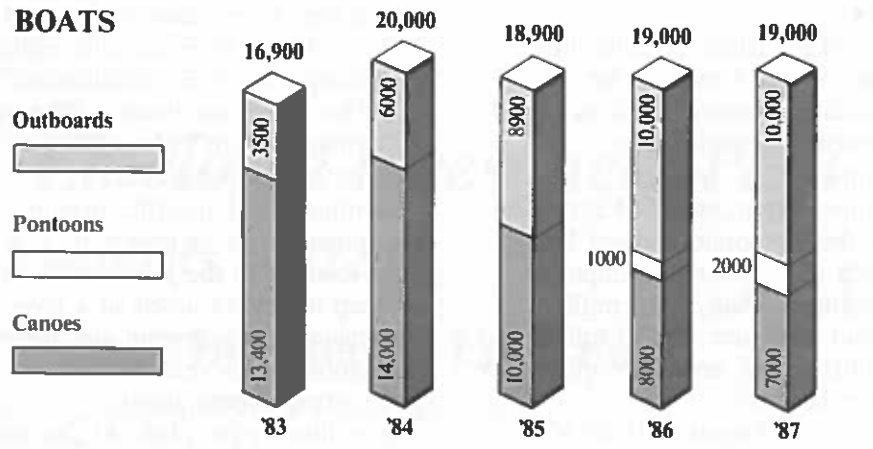
Grumman International, a subsidiary of Grumman Corporation, markets the products and services of all Grumman operating divisions internationally.

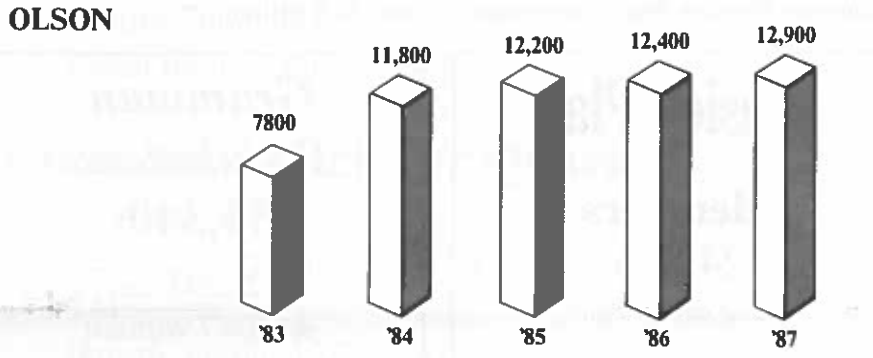
Major programs of 1987 are the E-2C Hawkeye for Aircraft Systems; the F-8 Peace Pearl fighter update for Aircraft Systems; the Sabre II fighter update for Aircraft Systems; the S-2T Turbotracker for Aerostructures; fire truck sales and manufacturing joint ventures for Allied; aircraft overall and modification for St. Augustine; Rolls-Royce automatic data reduction systems for Data Systems and the Saudi GENA (Ground Environment Navigation Aids) Project, an upgrade in facilities around airports, for Technical Services.

**On The Horizon.** *Grummanites at the Melbourne Systems Division in Florida are striving to reach an important milestone: the first flight of the Joint STARS aircraft on March 31, 1988.*

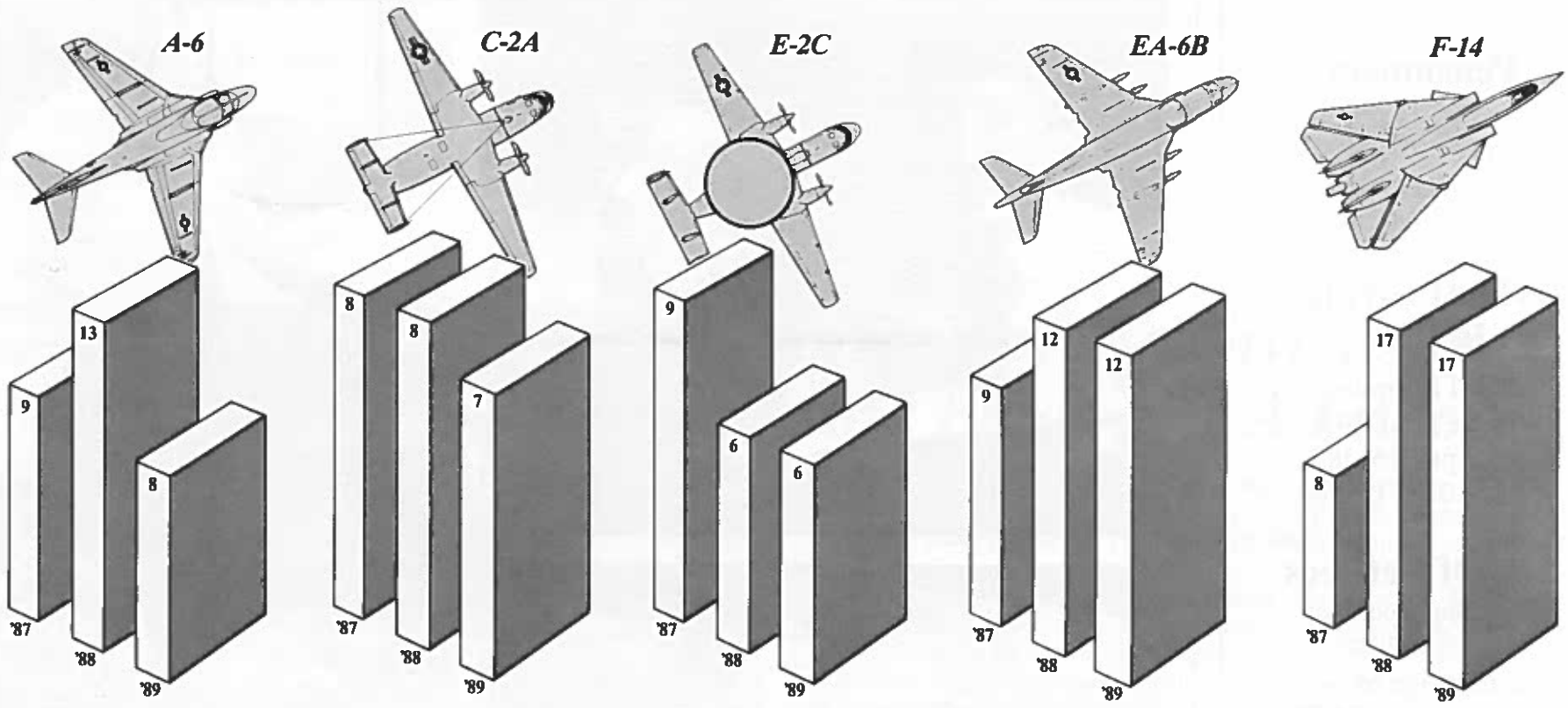
# By Sea Or Land, Allied Delivers




# Here's The Score On Aircraft Programs




**A-6 Intruder** — The first of five A-6F Intruder prototypes took to the air for its maiden flight on August 26; the second prototype flew on November 23. As of press time, the House of Representatives had included funding for the A-6F in its version of the next budget, but the Senate had not. Not included in the A-6 Program figures is modification work. In 1987, eight A-6E's were rewinged; five were retrofitted with Target Recognition Attack Multisensors; and reliability and maintainability work was performed on 12 KA-6D tankers.

**C-2A Greyhound** — The Reprocured Greyhound is being produced under a multiyear contract that calls for a total of 39 aircraft. Deliveries began in January 1987 and will end in October 1989.

**E-2C Hawkeye** — Included in the chart are the three Hawkeyes delivered to Egypt in 1987.

**EA-6B Prowler** — The program also involves modification work. In 1987, 12 ICAP-1 Prowlers were converted to the ICAP-2 configuration.

**F-14 Tomcat** — The maiden flight of the first production F-14A(PLUS) took place on November 14 and it was rolled out at Navy acceptance ceremonies the following Monday. The delivery of a second was scheduled for December. Eighteen Block 60/65 Update Program planes were slated for delivery in 1987. On November 23, the F-14D avionics development aircraft flew for the first time.

# Grumman Payroll To Top $1.1 Billion

For every $100 you brought home in 1986, you also received another $37 worth of benefits.

In 1986, Grumman's payroll hit the $1 billion mark. This year, payroll is estimated to be about $1.1 billion. In addition, Grumman spent another $329.4 million on fringe benefits in 1986. The 1987 figures were not available when we went to press.

These fringe benefits break down to $67.4 million for mandatory benefits such as Social Security, unemployment compensation, workers' compensation, etc.; $54.3 million for the Corporate Pension Plan; $20.5 million for the Employee Investment Plan, $70.6 million for group insurance; $112.3 million for paid time off; and $4.5 million for other benefits.

As of August 1987, 24,856 Grummanites were members of the Grumman Pension Plan. Grumman Allied has its own plan. Grumman St. Augustine, Grumman Technical Services, and Electronics Systems' Salisbury Operations and Tachonics units have capital accumulation plans. Other groups have profit-sharing plans or other plans as appropriate, and the company contributes toward the accounts of the Grummanites in those groups. When they retire, they are entitled to the value of their accounts either in a lump sum or in installments.

The Grumman Pension Plan is a "defined benefit" plan. The amount of any pension is determined by a specific formula. Grumman raises or lowers its contributions to the plan each year to keep the plan's assets at a level that matches any present and future obligations. This year, Grumman plans to contribute about $48 million to the plan. At the end of October, the plan's assets were over $1.9 billion.

## Pension Plan

**Members**
24,856
*As of August 1987*

**New '87 Retirees**
932
*As of October 1987*

**Pensioners**
9,603
*As of Dec. 1986*
*(including spouses of deceased Grummanites)*

**Oldest Living Retiree**
Vacil Monivis
Badge No.12193
Born April 26, 1892
Retired Jan. 1, 1962

**Age Of Retirees**
(including spouses of deceased retirees)
Less than age 61—777
Age 61 to 65—2,023
Age 66 to 75—5,312
Age 76 to 85—1,328
Over age 85—163

**Average Number Of Checks Received By Retiree: 192**

## *Grumman Population:* 34,340

★ 27,293 men
★ 7,047 women
★ Average Age: 41

## Grumman Benefits Facts And Figures

*(As of October 1987)*

★ 3,586 Patient Advocate calls

★ Number of prescriptions filled with mail order program:
Active employees — 23,710
Retired employees — 23,610

★ 28,471 people in Grumman/Travelers group health insurance program

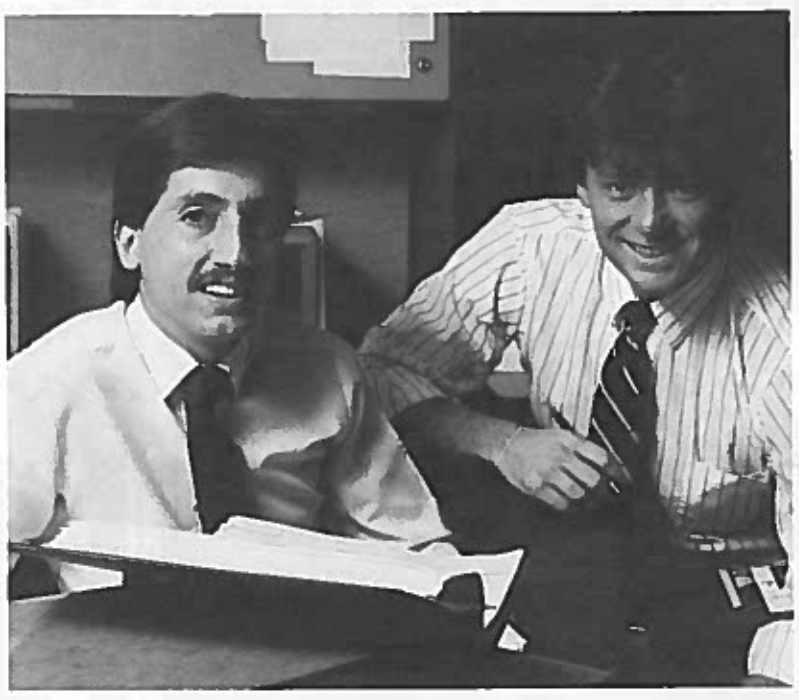
★ 4,869 people belong to HMOs

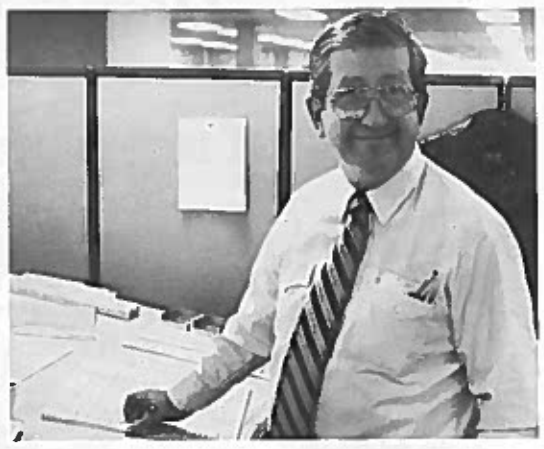
★ 95,395 health claims processed
★ 243,703 health claim checks processed

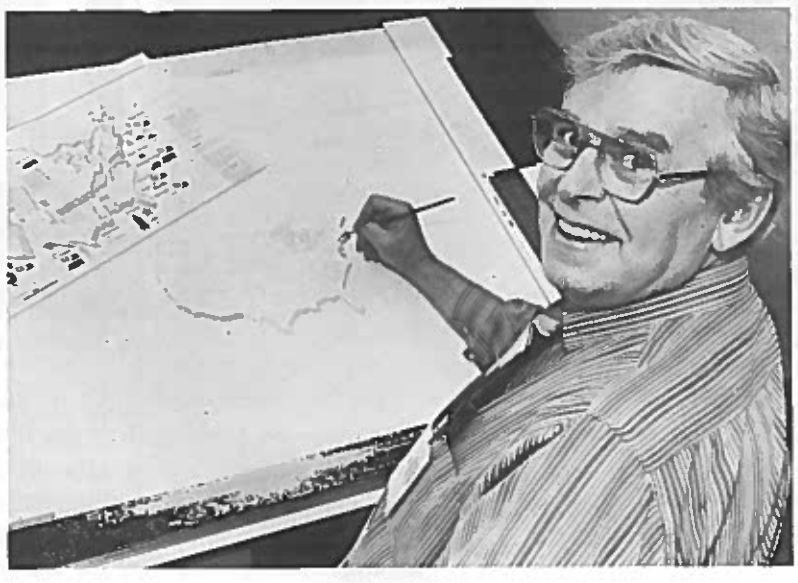
★ 32,946 dental claims processed
★ 50,339 dental claim checks processed

★ 13,231 people purchased vacation time in 1987

★ Number of people using flexible spending accounts:
Health : 3,001
Dependent care: 162
Legal Plan: 2,709







**People Factor.** *The Grumman work force is now 34,340 strong. Picture clockwise from top left are Don Boyd and Don Killian of Technical Services in Titusville, Florida; Bob Murphy of Electronics Systems in Melville, L.I.; Laura Accordino of Aircraft Systems in Melville; and Bob Whitehead of Grumman Corporation in Bethpage, L.I.*

**It Pays To Save.** *With help from their Employee Investment Plan accounts, Grumman photographer Bob Sagliocca and his wife, Debbie, of Documentation Distribution in Bethpage, purchased a house this year.*

# EIP Helped Make It Home, Sweet Home For The Saglioccas

Grumman photographer Bob Sagliocca and his wife Debbie of Documentation Distribution in Bethpage, Building 15, used the money from their Employee Investment plans to pay off some of their debts before buying a house this year.

"With the money we had saved in our EIP accounts, we were able to pay off all our bills in one chunk and start off in the new house with a clean slate," says Sagliocca.

"When you are saving money, budgeting yourself, and calculating whether or not you can afford to buy and keep up the house you want, its not enough to just figure on the house bills," says Sagliocca. "Those monthly charge card bills and everything else add up to quite a bit."

"We are both still in the investment plan," says Sagliocca. "Hopefully we'll accumulate enough money to help us with another big purchase in the future."■

### *Handy Number*

The Grumman Employee Investment Office in corporate headquarters has a recorded message featuring information on unit values and any late breaking news that EIP members should know about. The recorded message is on Ext. (111) 54400.

# *From Aspirin To Splints*

The Grumman Medical Department is headquartered in GHQ and has 25 nurses' stations throughout the country, and even one in Cairo, Egypt.

Its services range from nutritional counseling to clinic visits. In October alone, there were more than 18,500 visits to the Medical Department. If this trend continues, by year end over 200,000 Grumman patients would have visited Medical.

In 1987, Medical conducted a health survey, sponsored a nutritional month, hypertension screening, the annual Health Fair, glaucoma screening and three-hour cardio-pulmonary resuscitation training programs.

# *Employee Investment Plan*

## Members — 22,961

## Percent Invested In Each Fund

Company Stock Fund: 39.3%
Guaranteed Income Fund: 43.2%
Equity Fund: 10.6%
Fixed Income Fund: 6.9%

## Company Match Per Quarter

First quarter 1987 — 59%
Second quarter 1987 — 57%
Third quarter 1987 — 53%
Fourth quarter 1987 — 50%
First quarter 1988 — 50%

## Unit Values

*(As of October 31, 1987 compared to September 30, 1987 figures)*

Equity Fund — 3.792 (down from 4.848)
Fixed Income Fund — 5.783 (up from 5.599)
Guaranteed Income Fund — 2.626 (up from 2.602)
Company Stock Fund — $22.06 (down from $28.25)

**The Good Life.** *Grumman retiree Ron Small and his wife Nancy live in a log cabin about 10 miles from the nearest corner store in North Shapleigh, Maine.*

# *'You Have To Give It Up And Enjoy Life A Little'*

"Well, you can interview me in the morning," says Ronald Small. "But in the afternoon I'll be getting ready for my performance tonight. I'm playing Max in 'The Sound Of Music' with the local theater group."

Nestled in the woods of North Shapleigh, Maine, about 10 miles from the nearest corner store, sits a log cabin on Square Pond Lake.

After years of being a vacation home, it is now the permanent residence of Ronald and Nancy Small. "Just call us the second Ronald and Nancy," laughs Small, a retired structural engineer.

"I started working at Grumman in 1949 and retired in 1977," says Small. "They were some of the best years of my life and the memories will be etched in my mind forever.

"But, my time is now my own. You have to give it up and enjoy life a little," says Small. "I wake up when I feel like it. Maybe take a canoe ride, chop some wood, hike up and get the mail. That's a full day."

"As soon as I retired, I took the benefits from my pension, the money earned in the Employee Investment Plan, left the Long Island Expressway jams behind and headed straight for Maine," says Small. "Nowadays there are only three things I worry about: ice under the shingles, hunters and moose."

# About 600 People Weren't Shy, They Voiced Their Opinions

In October, *Grumman World* ran an opinion survey asking fellow Grummanites for their thoughts. We received 592 responses.

Now, we are not claiming to be Mr. Gallup. We concede it was an unscientific poll. We admit that many people used the survey as a sounding board to air gripes — satisfied people are not likely to sound off. But Grummanites didn't just write a long list of what they think is wrong with the company. They suggested remedies; they offered advice; they submitted ways to cope.

When the replies started coming in, we were a bit shocked. A lot of the early returns kept mentioning the "moral problems" at Grumman. Then, we realized that not everyone has a spellcheck word processor. They had dropped the "e" in morale.

Throughout the responses, some "us vs. them" prejudices were obvious: "young vs. old," "women vs. men," "bosses vs. workers." A lot of people personalized the survey by writing comments next to yes and no questions. A few took the liberty to rate their bosses by writing unflattering reports. The printable ones ranged from "incompetent" to "fruitcake" to "Which one? I have many."

One fellow admonished us for our half-page survey layout. "Next time when taking a poll leave more blank lines for people to write. I for one could write paragraphs on my opinion of Grumman."

Overall, the Grummanites who wrote in shared a lot of the same concerns that John O'Brien expressed during his interview (see page 4). They think people should adapt better to change. They are concerned about the company's cash flow, what happens in Washington, D.C., and the lack of communication. In general, they want to make the company better. They are optimistic — but they urged fellow Grummanites across the company to get their act together. As one Grummanite wrote, "Grumman has a good future, but we must always stay on our toes. Things can change very fast."

Here are the results of the survey.

**How would you rate Grumman benefits?**

Twelve percent gave Grumman benefits an excellent rating; 44 percent, good; 33 percent, fair; and 11 percent, poor.

It should be noted that those who rated the benefits package fair or poor, pinpointed specific items they didn't like. People nearing retirement didn't think the pension program was good enough. People whose children needed braces thought the dental plan was lacking. Some wanted to forego the dental plan and get more sick time or vacation days. Members of two income families wanted on-site day care, while a few single people thought they should get more time off because they didn't use as many benefits as married couples with kids.

**If you could change anything at work, what would it be?**

This certainly was an open-ended question. Some people explained their personal reasons for the previous ranking of benefits. Others opted to change their bosses.

Some were a bit self-centered. They would change their titles, their salaries, and their departments.

Some suggestions were:

"Give myself more to do and a raise system that is based on merit and productivity."

"I'd like better compliance to department rules about paperwork completion."

"Be better informed on job opportunities for our off-Long Island locations."

"Start a rotational program for new incoming engineers."

"Eliminate unhappy supervisors that cause unnecessary grief for everyone."

"Initiate a corporate-level 'push' to computerize and streamline the processing of forms and procedures. We have become a paper tiger and it's getting worse."

"Eliminate procedures and organizations that slow down our ability to get things done fast."

"Expand communications upward, downward, laterally."

"A computer or terminal on each engineer's desk."

"Enable Grummanites to transfer to a different state if they wish to do so."

"I would change the attitude of many people that never seem to do any work. Get busy or get out."

**Do you feel secure in your job?**

Sixty percent responded yes. Wrote one person, "You get out of it what you put into it." Another said, "Any competent person should feel secure."

"I'm secure because I am a hard worker and do good quality work," adds another. "Yet, many people in Grumman feel secure even though they are not contributing up to par."

On the other hand, most who were not secure in their jobs blamed it on the defense budget cuts or poor rapport with their bosses. One said, "I'm not secure in my job because 'yes men' and apple polishers rank highest in my department!" Another: "I'm not secure because the military budget will have to be lowered — no other choice."

**Do you serve your community as a volunteer?**

Of the 573 who responded to this question, 222 said yes; 351 said no. Firefighters, coaches, and fundraisers led the way. The types of activities people volunteered for were just as diverse as the work force. They ranged from working in hospices to teaching religion to serving on the local school board.

One Grummanite who didn't volunteer wrote, "I don't work as a volunteer because Grumman needs more help."

**How would you rate yourself as a worker?**

Many people checked off more than one box in this section. Sixty-nine percent rated themselves as good team players. Twelve percent graded themselves average; 10 percent proclaimed themselves superstars; eight percent admitted being workaholics; and one percent said they were lazy. A lone Grummanite labeled himself as a "lazy superstar."

**How would you rate your boss?**

Seventeen percent of the respondents rated their bosses as great leaders; 39 percent average; 33 percent play favorites; and two percent slavedrivers.

**What after-hours activities do you participate in?**

Of the 592 survey participants, 434, or 74 percent, participated in Grumman-sponsored activities after work. Sports were the most popular activity with 31 percent participating.

**Do you use a computer at work? at home?**

One-quarter used a computer at work and at home. Thirty-eight percent had a computer at work, but didn't have one at home. Thirteen percent have a PC at home, but don't touch a keyboard at work. Meanwhile, 24 percent said they didn't use a computer at work or at home.

**Do you go to school after work?**

About one-third go to school after work.

***'As I climbed the ladder of success, I saw everyone pass me in the elevator.'***

**Are you satisfied with your career path?**

Thirty-four percent said yes; 66 percent said no. Said one happy survey participant: "I'm satisfied with my career path, because I put in a lot of effort to get here." However, most people who were pleased with their career paths did not say why. That was not the case with those answering no.

They said that their bosses have never discussed career paths with them. Some people simply said they felt they were in dead-end jobs, while others who checked off no were making plans to change Grumman careers.

A sampling of responses: "Due to favoritism, I will never get ahead." "I am capable of doing more for the company than I am allowed to do." "I cannot move up unless someone moves out." "As I climbed the ladder of success, I saw everybody pass me in the elevator."

**What do you think about Grumman's future?**

Almost all were very optimistic but they did add that there were challenges ahead:

"Future is excellent if we reduce the bureaucracy and paperwork."

"We will have continued success due to

***Do You Feel Secure In Your Job?***

**Yes**
60%

**No**
40%

*Based on replies from 592 Grummanites who participated in the* Grumman World *survey.*

leadership with vision and ability to seek new diversified business."

"Future will be relatively strong if it can pull through the cash flow problem in the next year and a half."

"Grumman has unrealized potential."

"It's so bright, I gotta wear shades."

"We'll be around for the next 100 years."

"Hopefully a few more lean years then all this investment will pay off."

"It could be very positive if we get off our butts and become more competitive by

***'It's so bright, I gotta wear shades.'***

providing people with risks and rewards."

"We have a great future. We are poised to take advantage of the marketplace."

"We have the basic nucleus to be a tremendously creative and profitable company."

"Excellent future with the current DoD business base and the potential for non-defense applications of our products. Grumman is stable and strong."

"The future looks good due to diversification and R&D expenditures for future growth. However, too much depends on government contracts."

"Grumman has a strong solid future because we are trustworthy and most of the time bend over backwards to help our customers."

"It will be a good future only if Grumman recognizes that to keep talented young people on Long Island they will have to establish flex time and provide on-site day care as young couples require two incomes to own a home."

"Our future depends heavily on the upcoming elections. The potential exists for large defense cuts which could hamper growth."

***'It's going to get tougher to make a buck, but we will due to dedicated workers.'***

"It's going to get tougher to make a buck, but we will due to dedicate workers."

"It's a very bright future if the corporation increases sensitivity to defense and domestic needs in a volatile economic environment."

"Defense in general will be rocky but Grumman will survive."

"We have a future if we can motivate our people."

"Future will depend on who is the next president and how the country feels about the military."

There were some people would looked at the future a little more skeptically:

"I think Grumman is at a crossroads that will either kill it or make it a very high powered company."

"We'll have a poor future, unless we rid ourselves of a 'defense company' mentality and function more like the competitive private corporation we're supposed to be."

"If and only if we shape up at least 20 percent we may have a fighting chance."

"We must go through some big transitions and change. If we accomplish this successfully, we'll be in great shape. If not...."

"Our future is in trouble. Too many people employed but not performing. They are just passing the time of day. My estimate is that about 1/3 of the people work their tails off to carry the non-working goldbricks."

"I'm concerned that despite major investments, many new programs will be lost or if won will lose money due to waste and poor organization."

**What do you think is the company's weakness?**

Although middle management took it on the chin, nobody was really immune to criticism. People attacked "bean counters," "dead wood," "engineers," "production" and "bosses."

Here are some of the responses:

"We lost our pride and we have to get it back."

"Too slow to change and keep up to date."

"Too much of the aircraft work is tied to the political side of our government."

"Too much overhead costs."

"Bean counters. They destroyed Detroit and they are self-centered and are not held responsible for long term damage to the company. In fact, they are rewarded for short term and they move on and leave a mess."

"Aircraft Systems is an inverted pyramid."

"Top heavy with managers that don't lead and managers that don't manage."

"Older workers are reluctant to pass their knowledge on to the younger employees."

***'I am disappointed that the company does not take a harder approach to reducing costs.'***

"It used to be people volunteering to do anything to get the job done, but favoritism and nepotism are turning off people like me."

"We need to strengthen basic skills and increase new fast moving technologies."

"Too many promotions made on the golf course."

"Grumman is too insular in its approach to the marketplace. We are just beginning to understand the threats of our competitors. We haven't developed adequate strategies for developing new market niches or meeting our competition head on."

"I am disappointed that the company does not take a harder approach to reducing costs. Layoffs are only token efforts. There is still a great deal of 'dead wood' throughout Grumman. Management refuses to exert the control necessary to force lower line management to slice the size of their small dynasties. We will never survive in this marketplace unless we are willing to make a serious effort to streamline this company."

"Weak middle management — An 'I can't do it' instead of 'we can do it' attitude."

"Grumman's discouragement of change/ideas."

"We have good people, but they are underutilized."

"Something needs to be done about morale."

"Management has old-fashioned ideas. Not progressive enough in dealing with employee needs."

"People make the same mistakes and are not being reprimanded."

"Most people are on autopilot, can't communicate effectively, and are ignorant of a 'whole system.' "

"Management is very ignorant of how to treat employees. It is mired in WWII mentality still."

"We are not as efficient as we should be. Many workers are non-workers."

"Unwillingness to change and blaming failure to change on the customer."

"Periodic complacency that we'll always be here."

"Too many people at Grumman are still resting on laurels of programs past (LM, OAO, aircraft)."

**What is the company's strength?**

Its people, quality products and reputation were the most popular responses, by far. A sampling:

"The ability of its products to perform above all of its competition."

"The fortitude of workers in dealing with frustration caused by bad management and bureaucracy."

"The ability to engineer good tough airplanes."

"A seasoned work force waiting to be motivated and led."

"Modernization and strong investments in R&D, engineering base and diversification into good products."

"Stockholders are employees."

"The workers who still feel they must be proud of what they produce and our reputation for putting out a quality product."

"Our ability to give the Defense Department the best and latest technologies."

"Our brain trust, track record in delivering products that perform."

"A vast range of technical talents — anything can be accomplished somewhere in Grumman. Its people seem to be steadfast and levelheaded."■

## *How Would You Rate Your Boss?*

**Great leader**
17%
**Average**
39%
**Plays favorites**
33%
**Slavedriver**
2%

*Based on replies from 592 Grummanites who participated in the* Grumman World *survey.*

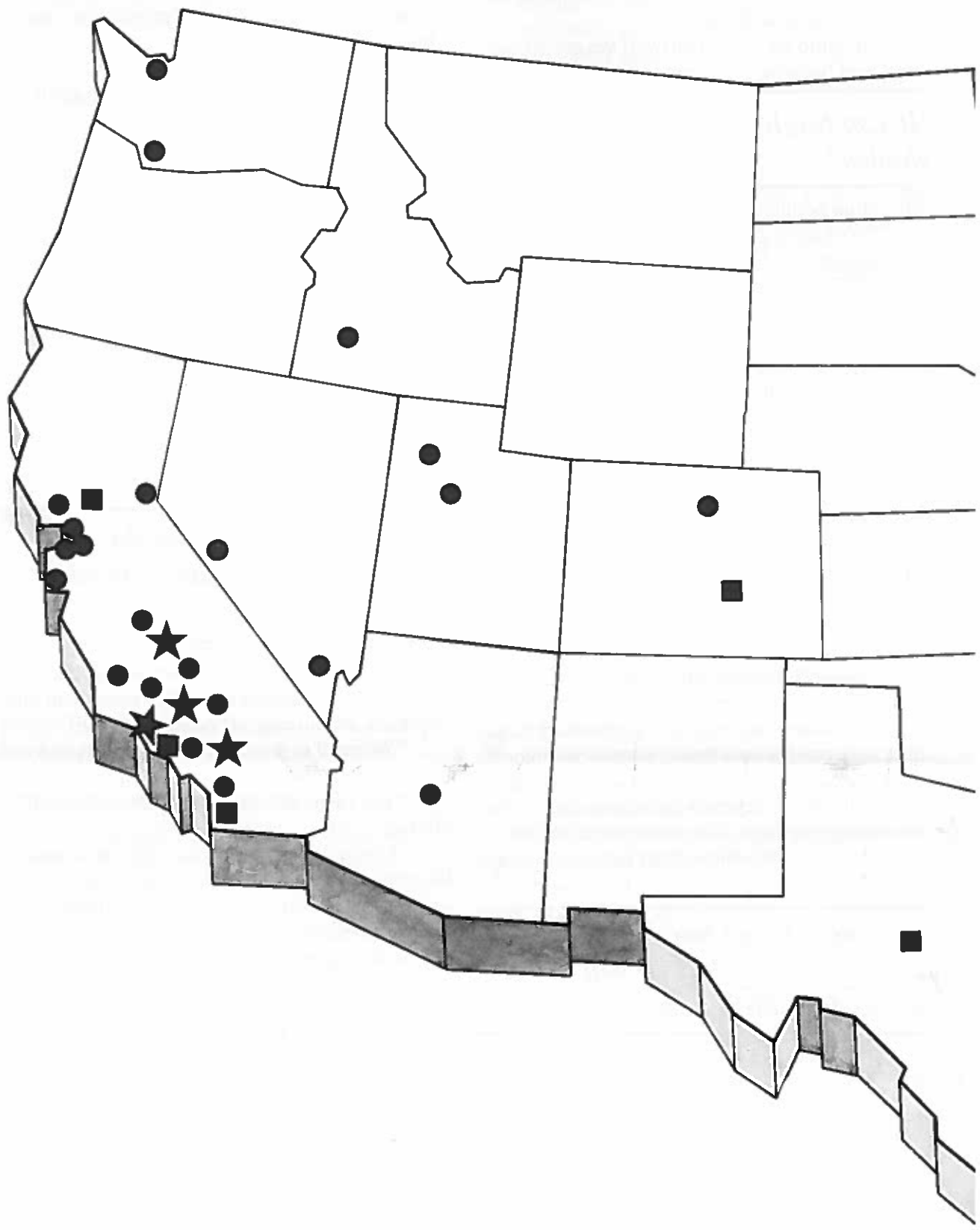
## *Do You Use A Computer At Home? At Work?*

**At home and at work**
25%
**At work only**
38%
**At home only**
13%
**No computer at work or home**
24%

*Based on replies from 592 Grummanites who participated in the* Grumman World *survey.*

# Putting Grumman On The Map

★ Major Sites
• Offices
■ Corp. Development Offices



### Alabama
•Space Station Support, Huntsville
•Data Systems, Huntsville
•Electronics Systems, Huntsville
•Grumman Systems Support Corp. (GSSC), Data Systems, Birmingham
■Corporate Development, Huntsville

### Arkansas
★Grumman Boats (Allied), Arkadelphia

### Arizona
•Technical Services, Luke AFB

### California
■Corporate Regional Office: Western, Los Angeles
■Corporate Development, Los Angeles
•Aircraft Systems, NAS Alameda
•Aircraft Systems, Edwards Air Force Base
•Aircraft Systems, NAS North Island
•Aircraft Systems, MCAS El Toro
•Grumman Olson (Allied), Fresno
★Space Systems, Irvine
•Grumman Emergency Products (Allied), Pittsburg
★Aircraft Systems, Pacific Missile Test Center, Pt. Mugu
•Aircraft Systems, Naval Weapons Center at China Lake
■Corporate Development, Sacramento
•Aircraft Systems, NAS Miramar
•Data Systems, PMTC Pt. Mugu
•Data Systems, Vandenburg AFB
•Data Systems, San Diego
■Corporate Development, San Diego
★Grumman Olson (Allied), Tulare
•Technical Services, Alameda
•Technical Services, China Lake
•Technical Services, Edwards AFB
•Technical Services, El Toro
•Technical Services, Lemoore
•Technical Services, NAS Miramar
•Technical Services, NAS North Island
•Technical Services, Point Mugu
•Technical Services, Sacramento
•GSSC (Data Systems), Concord
•GSSC (Data Systems), Los Angeles

### Colorado
•GSSC (Data Systems), Lakewood
■Corporate Regional Office, Colorado Springs
•Data Systems, Colorado Springs

### Connecticut
•GSSC (Data Systems), Meriden

### Florida
•Aircraft Systems, Ft. Walton Beach, Eglin AFB
•Space Station Support, NASA/KSC
•GSSC (Data Systems), Kennedy Space Center
★Melbourne Systems, Melbourne
•Aircraft Systems, NAS Key West
•GSSC (Data Systems), Melbourne
■Corporate Development, Orlando
★Grumman St. Augustine, St. Augustine
★Aircraft Systems, Stuart Operations
★Technical Services, Titusville
•Technical Services, Duke Field
•Technical Services, Eglin AFB
•Technical Services, Homestead AFB
•Technical Services, Hurlburt Field
•Technical Services, Kennedy Space Center
•Technical Services, Key West

### Georgia
■Corporate Regional Office: Southeastern, Atlanta
•Data Systems, Albany
•GSSC (Data Systems), Albany
★Aircraft Systems, Milledgeville Operations
•Aircraft Systems, Warner Robins AFB
•Technical Services, Warner Robins AFB
■Corporate Development, Warner Robins AFB

### Hawaii
■Corporate Development, Honolulu

### Idaho
•Aircraft Systems, Mountain Home AFB
•Technical Services, Mountain Home AFB

### Illinois
■Corporate Regional Office, Des Plaines
•GSSC (Data Systems), Schaumburg

### Indiana
•Technical Services, Naval Weapons Support Center, Crane

### Kansas
•Melbourne Systems at Boeing Military Airplane Company, Wichita

### Louisiana
•Aircraft Systems, CNR New Orleans

### Maryland
•Aircraft Systems at Litton Industries, College Park
•GSSC (Data Systems), Gaithersburg
★Aircraft Systems, Glen Arm
•GSSC (Data Systems), Linthicum
•Aircraft Systems, Naval Air Test Center, Patuxent River
★Electronics Systems, Salisbury
•Space Station Support, Greenbelt
•Technical Services, Naval Air Test Center, Patuxent River

### Massachusetts
■Corporate Development, Lexington
•Grumman Olson (Allied), Lexington
•GSSC (Data Systems), Woburn
•Data Systems, Lexington

### Michigan
★Grumman Olson (Allied), Sturgis
•GSSC (Data Systems), Troy

### Minnesota
•Grumman Boats, Brainerd

### Mississippi
•Technical Services, Keesler AFB

### Missouri
•GSSC (Data Systems), Maryland Heights
■Corporate Development, St. Louis

### Nebraska
•Data Systems, Bellevue

### Nevada
•Aircraft Systems, Nellis AFB
•Technical Services, Fallon AFB
•Technical Services, Nellis AFB

### New Jersey
•GSSC (Data Systems), Fairfield
•GSSC (Data Systems), Moorestown
★Tachonics (Electronics Systems), Plainsboro
•Space Systems, Princeton

### New Mexico
■Corporate Development, Albuquerque

### New York
★Grumman Corp., Bethpage and Bohemia
★Aircraft Systems, Bethpage, Calverton, and Melville
★Data Systems, Bethpage, Holtsville, Calverton, Woodbury
★Grumman Boats, Marathon
★Aerostructures, Melville
★Allied, Bohemia
★Electronics Systems, Bethpage, Great River and Melville
★Space Systems, Bethpage
•Technical Services, Bethpage
•Grumman Olson (Allied), Jericho
•Data Systems Institute, Woodbury and Bohemia
•Data Systems, Troy
•GSSC (Data Systems), Syracuse
•GSSC (Data Systems), Latham

### North Carolina
•Aircraft Systems, MCAS Cherry Point
•Technical Services, MCAS Cherry Point
•GSSC (Data Systems), Fayetteville

### Ohio
•Space Station Support, Cleveland
•Data Systems, Dayton
•GSSC (Data Systems), Bowling Green
•GSSC (Data Systems), Brookville
•GSSC (Data Systems), Cincinnati
■Corporate Development, Dayton
•GSSC (Data Systems), Strongsville
•Grumman Ohio Corp., Worthington

### Pennsylvania
★Grumman Olson (Allied), Mayfield
★Electronics Systems, Benton Park
•GSSC (Data Systems), Monroeville
★LLV (Allied), Montgomery
•GSSC (Data Systems), Norristown
•Aircraft Systems, Aviation Supply Office, Philadelphia
•Technical Services, Aviation Supply Office, Philadelphia
■Corporate Development, Warminster

### Rhode Island
•GSSC (Data Systems), East Providence

### South Carolina
•Data Systems, N. Charleston
★Grumman Allied, Lexington

### Tennessee
•Data Systems, USAF Arnold Engineering Development Center
•Space Systems, Oak Ridge National Laboratory
•GSSC (Data Systems), Chattanooga

### Texas
★Space Systems, Houston
•Space Station Support, Nassau Bay
•Technical Services, NAS Dallas
•Technical Services, Johnson Space Center, Houston
•GSSC (Data Systems), Houston
■Corporate Development, San Antonio
★Grumman Olson (Allied), Sherman
★Grumman Houston (Electronics Systems), Webster
•GSSC (Data Systems), Dallas
•GSSC (Data Systems), Austin

### Utah
•Technical Services, Hill AFB
•GSSC (Data Systems), Salt Lake City

### Vermont
•GSSC (Data Systems), Barre

### Virginia/Washington, D.C.
★Space Station Support, Reston
•Grumman Corporation, Arlington
★Data Systems, McLean
■Corporate Development, Hampton
•Aircraft Systems, NAS Norfolk
•GSSC (Data Systems), Richmond
★Emergency Products (Allied), Roanoke
★Emergency Products (Allied), Vinton
•Aircraft Systems, NAS Oceana
•Technical Services, Langley AFB
•Technical Services, NAS Norfolk
•Technical Services, NAS Oceana

### Washington
•GSSC (Data Systems), Redmond
•Aircraft Systems, NAS Whidbey Island
•Technical Services, NAS Whidbey Island

### Wisconsin
★Grumman Boats (Allied), Minong

### Canada
■Corporate Regional Office: Canada, Enfield, Nova Scotia
•Grumman Olson (Allied), Ontario

### International
•Grumman International (GII), Tel Aviv, Israel
•GII, Paris, France
•GII, Singapore
•GII, Taipei, Taiwan, Republic of China
•GII, Tokyo, Japan

Also Grummanites in Technical Services and Aircraft Systems work at the following locations:
•Cairo, Egypt
•Upper Heyford, England
•Bad Munder, Germany
•Basdahl, Germany
•Pruem, Germany
•Sigonella, Italy
•Astugi, Japan
•Iwakuni, Japan
•Yokosuka, Japan
•Cubi Point, Philippines
•Singapore

# Grumman Is Technology In Motion

The big move was last year when the entire Joint STARS program moved to its home in Melbourne, Florida, over the holiday break.

This year, the big news was the Space Station Program Support Contract win. That meant the opening of a 38,500-square-foot facility and the movement of 99 Grummanites to the Washington, D.C., suburb of Reston, Virginia.

It was a banner year for Electronics Systems. The division started printed circuit board production in its new Benton Park, Pennsylvania, facility on August 17. That day, the Grummanites there, 46 of whom transferred from Great River, Long Island, delivered their first two assemblies.

Electronics Systems also dedicated its new Technology Center in Great River, Long Island, and the Bethpage Federal Credit Union opened a new building there. The Credit Union also began construction of its new headquarters in Bethpage.

**Going Along With The LLV.** *This past spring, methods engineer Angel Rivera transferred from Aircraft Systems in Bethpage to Allied's LLV program in Montgomery, Pa. 'The house I bought in Pennsylvania for $79,900 would be worth at least $180,000 on Long Island,' says Rivera.*

Grumman opened a new site at Naval Air Station Dallas, Texas, and completed buildings to replace trailers in Stuart, Florida, and Irvine, California.

The Melbourne Systems Division expanded its Joint STARS facility with the opening of a 185,000-square-foot building and two new warehouses.

This year Melbourne Systems Division moved another 232 people to Florida from Long Island. Three Grummanites transferred from Technical Services in Titusville to Melbourne.

In Titusville, Florida, Grumman Technical Services added 8,000 square feet of office space. One Grummanite from this division, and 16 from Electronics Systems' Great River Operation moved to Fishkill, New York.

Aircraft Systems added a new material distribution and kitting center and three warehouses in the Bethpage area this year.

The Allied Division opened a new manufacturing facility in Minong, Wisconsin, for its Grumman Boats unit and purchased a building in Columbia, South Carolina, to centralize its parts production and warehousing operations, primarily for Olson Trucks.

Data Systems moved its Colorado Springs staff into bigger offices. Its Grumman Systems Support unit opened offices in 10 more U.S. cities this year.■

**Happy Together.** *The Brandos — (L to R) Nick, Nicholas, Jason, Kimberly and Pat — have found happiness in their Merritt Island, Florida, home.*

## The Kids Think They're On Vacation

He'll probably never get Brooklyn out of his blood and he admits he'll miss the snow at Christmas, but Nick Brando and his family have found happiness on a quiet street on Merritt Island, between the Indian and Banana rivers in Florida.

"My wife and I thought the environment was much better in Florida," says Brando. "We felt it would be a better life."

Brando is a program planner/coordinator for the Operations and Maintenance Group of the Technical Services Division in Titusville. His group began moving from Bethpage, L.I., to the division headquarters in early 1987.

"It was an opportunity for career improvement," says Brando, who has been with the company for 12 years. "This is our division headquarters. In Bethpage, I was only dealing with one aspect of the operation. Here I deal with the multi-faceted aspects of the division."

Three weeks after they put their Hicksville home on the market they had a buyer. On March 18, after looking at some 40 houses over a three-day period, they bought their Merritt Island home. By the end of the month they had moved in.

"The only reservation we had about leaving Long Island is that we are close to our families, my wife more so than I. It's a big adjustment, being away from the family."

But it was a move he felt he had to make for his wife, Pat, and their three children. He likes the more relaxed pace of life. "The hardest thing was trying to convince our kids that they weren't on a permanent vacation."

**Home, Sweet Hotel.** *Al and Mary Gustaitis are hoping they'll be in their new home in Hauppauge, Long Island, by Christmas.*

## Seventeen Times What They Expected

"In 1970 Grumman sent me out for a year to Pt. Mugu. Then I stayed on for one more year and then one more year," says Al Gustaitis, who was tranferred back to Bethpage this year. "My one year finally ended."

Indeed it did. He saw his children grow during the 17 years his family was in California. When Grumman asked him to come back, the kids decided to stay. But, in spite of all the good things in California, Al and his wife, Mary, weren't unhappy to get back. "She's originally from Boston, so she didn't mind," Gustaitis says.

"There were other things back East that I did miss, like the seasons. And earthquakes didn't endear me to California. I've lived through a few."

The Gustaitis's lived in Camarillo for many years and in Long Beach. He says he will miss the dry climate and the general California environment, and the fact that he didn't have to contend with a big lawn. Right now he and Mary are living in a hotel in Plainview. With luck they'll be moving into a house on a half-acre of mowable greenery in December.

"The culture shock in being back, of course, is the price of housing, although the prices in California are kind of high, too," says Gustaitis, who lived in Queens, New York, before moving west. "But there are more amenities in California houses. The real estate taxes are outrageous here."

But Field Base Administration helped minimize the culture shock for them. "They were great."

## New Ways To Go

During 1987, Grumman spent over $12 million on air travel with an average ticket price of $408. On January 30, a new company travel policy will go into effect. The changes to the policy are expected to save Grumman 10 percent on airfare expenses.

★ Lowest logical airfares and discounted coach class service will be selected by the Grumman authorized travel agent, within a one-hour window. This means that the travel agent can select lower-fare flights that are one hour before or after the employee's desired departure and/or arrival time.

★ When discount fare seats are sold out or when there is insufficient time to make advance purchase reservations employees will be required to travel on direct (i.e. one-stop) or connecting flights. Flights that do not involve a connection will be selected when possible if costs are equal and usually don't require more than one stop or over 1.5 hours on the ground.

Additional changes will be included in the revised A632 policy, which will be distributed in January. "We're trying to do this with the least amount of hardship for the employee," says Jo Brune, manager of Travel Operations. "But in the company's current financial situation, we must all work together to help save money."■

# Grumman Products Keep The Customers Happy

**Special Delivery.** *Edwin Munford is the first carrier from the Biddeford, Maine, Post Office to drive the Long Life Vehicle on his route.*

## Maine Post Office Carrier Loves His LLV

"Come on, I'll show you my new truck," says Edwin Munford. "It's the best thing that's happened to me in the 18 years I've been a carrier."

Eight weeks ago, the Biddeford, Maine, Post Office received one of Grumman's Long Life Vehicles. Munford was the carrier chosen to drive the new truck.

"They say the squeaky wheel gets the grease," says Munford. "I sure squeaked about those old trucks. The new LLVs are like a dream come true.

"It is so comfortable," says Munford. "I have 500 stops along my 22 mile-route. I'm in and out of this truck an awful lot. Some mailboxes are at the foot of people's driveways, but others are on porches which means I have to get out to deliver the mail. It's nice not having to climb. I just take one small step in and out. My chair swivels around to make getting out even easier.

"I feel I could deliver mail 24 hours straight if I had to," says Munford. "I'm just not as tired as I used to be at the end of the day. This truck has made the carrier's job less wearisome.

"The oversized windshield and side windows give me a terrific panoramic view," says Munford. "I can clearly see any obstructions in the road.

"I have people along my routes in shopping centers and industrial parks stop me and comment on how terrific my new truck looks," says Munford.

Aside from the truck's good looks and ease of driving, it has some nice safety features. Munford had to take a three hour class. He had to watch a video tape on the mechanics of the truck and there was a written test. Then he practiced driving around cones and backing up. "You need practice using your mirrors," says Munford. "There are no windows in the back of the truck.

"We haven't had any Maine snowstorms yet, says Munford. "I'll be anxious to see how the truck handles. The temperature has been real cold though, and so far there haven't been any problems.

There is a box of dog snacks on the dash board. "I'm not supposed to feed the dogs," says Munford, "but I haven't been bitten in 18 years."■

## Hit The Afterburners And Wow!

If you want a satisfied customer, you won't find two more enthusiastic than Lt. Joe "Reb" Edwards and Lt. Scott "Stewie" Stewart. Edwards is a pilot, and Stewart is a radar intercept officer. Both are on the 28-member Navy team under Cdr. Jim Coleman working at Grumman on the F-14D development program.

Edwards and Stewart graduated from the U.S. Naval Academy together. Though assigned to different squadrons, they both flew F-14s in the Mediterranean, encountered MiGs, and dodged missiles. They love the Tomcat and have nothing but raves about the new F-14D now under development.

"The F-14A is basically a well-designed aircraft, even with its older engines," says Edwards. But the F-14A-Plus with its new, more powerful General Electric engines is a real rocket.

"We've both flown the new aircraft," says Edwards. "We'll never forget the first time we lit the afterburners at low altitude. We were like two kids on 'E-ticket' rides at Disneyland."

Stewart calls the performance of the new plane "eye-watering." As a radar intercept officer, he's waiting to test the F-14D's advanced weapon systems.

Both say that they are impressed by Grummanites. "The Grumman people take to heart what the customer says," Stewart states.

"We're seeing some hard charging engineers jump on problems," says Edwards. "It's really enjoyable working with the Grumman people, especially the human factors group and the software engineers."

They say that design work is rewarding, but the fun is in the flying. "Stewie and I just want to go right down to the flight line and take off and whip some bogies."■

**Love Their Work.** *Pilot Lt. Joe Edwards (R) and radar intercept officer Lt. Scott Stewart enjoy flying the more powerful F-14A(PLUS).*

**Winter Respite.** *This is the quiet season for (L to R) Mary, Ruth, and Dave Jones of Kittatinny Canoes. Things usually pick up after the holidays.*

## Down By The Riverside

"In the 1940s, my parents made their living by renting canoes and rowboats by the hour off a bathing beach here on the Delaware River," says Ruth Jones, owner of Kittatinny Canoes, Dingmans Ferry, Pennsylvania. "Somebody suggested that my father throw the boat on the top of his truck and take them upriver, so they could come back down with the current. That's how the whole thing started — we were the first canoe livery on the Delaware."

Working with Jones are her son, Dave, and daughter-in-law, Mary. On peak days in the summer, the firm's six rental offices serve as many as 2,000 customers.

"Grumman makes the best aluminum canoe in the market," says Jones. "We're only two and a half hours away from the plant — we drive up there and pick up our own canoes."

At the end of the season, all the canoes are overhauled — they are cleaned thoroughly, dents are removed, and rivets tightened. The canoes are piled in several pyramids behind the Joneses' winter office — about 1,000 feet up in the Poconos from the summer headquarters.

"You have to enjoy this business to stay in it," says Jones. "I take one day off each week, usually Tuesday, and I go canoeing on the river."■

**Rules And Regulations.** *Janine Filgueras and Ray Voorhees work for EA-6B Contracts in Melville, L.I. 'You can't keep ethics to yourself,' says Filgueras. 'Your actions have an impact on society at large.'*

# *'Being Ethical Is Good Business'*

Ethics. Fairness. Right and wrong.

Though the recent Wall Street scandals have stolen center stage, perhaps no industry has been as criticized in recent years as defense contracting.

As one of 36 companies to sign the Defense Industry Initiatives on Business Ethics, Grumman held an ethics awareness campaign in 1987. Every Grummanite received a copy of the newly revised *Grumman Code of Business Conduct.* Two departments — Procurement and Business Operations — held special seminars, which were attended by about 900 people in all.

Kathy Cunningham, a subcontract administrator for Procurement in Building 30, has worked for Grumman for nine years. "It's always good to remind people of the rules," she says. "If you become too complacent, you could forget where to draw the line. For example, in procurement, an occasional luncheon meeting with a supplier is appropriate. The danger is making it a habit.

"Grumman has a good business reputation," she continues. "We must always be cautious about our actions — and how those actions are perceived by people outside the company. Once you lose your reputation, it takes a long, long time to win it back."

"People read about overcharges and kickbacks and think the whole defense industry is corrupt," she adds. "But those are a few isolated cases."

"From a purely pragmatic standpoint, being ethical is good business," says Ralph Groves, another subcontract administrator. "It takes years to build up a business — and through unethical behavior, it could all get wiped out in one day."

Groves says the term "business ethics" encompasses matters the layperson wouldn't think it would. "We have to certify that our subcontractors have non-segregated facilities and practice equal employment opportunity," says Groves. "Those concerns are part of our social fabric in the U.S."

In the Business Operations world, rights and wrongs are spelled out in the multivolume *Federal Acquisition Regulations.* One highly important law is the Truth-In-Negotiations act. The company must supply the government with the most current, accurate pricing information at the time a contract is negotiated.

"These days, credibility is not a given — you have to earn it," says Janine Filgueras, an EA-6B associate contract analyst. "I feel Grumman has done a better job in this regard than its competitors."

When an administrator negotiates a contract, he or she fills out a "record of negotiation," of which copies are sent to various other departments for scrutiny. "You answer not only to the customer but to so many other parts of Grumman," says Ray Voorhees, associate contract analyst.

Some of Cunningham's friends work in non-defense industries where gratuities are commonplace. "Somebody, somewhere down the line ends up paying for those so-called harmless perks," she comments. "But they work in industries where such behavior is never challenged."

"It all gets back to knowing the difference between right and wrong," says Filgueras. "You can't just keep your ethics and morality to yourself — your actions have an impact on society at large."

Does the focus on ethics affect morale? "Sometimes you do feel Big Brother is watching," says Cunningham. "But we all know that our business — and our livelihood — are on the line."

"We're in a goldfish bowl here," says Groves. "The government audits us all the time. We're used to it."

"It's not a sales position where you need pep talks...but it's always good to share your experiences with other administrators," says Filgueras.

"As federal taxpayers ourselves," says Voorhees, "deep down we are glad the government is spending our money so carefully."■

**Avoiding Misconceptions.** *'We must always be cautious about our actions,' says Kathy Cunningham, 'and how those actions are perceived.'*

**Knowing The Territory.** *Ralph Groves: 'It takes years to build up a business. Through unethical behavior, it could all get wiped out in a day.'*

# LLV Crew Takes Stock Of Critical First Year

MONTGOMERY, Pa. 17752-9734 — If you visit the Grumman plant here early in the morning, you can see a train rolling by loaded with the U.S. Postal Service's Long Life Vehicles (LLVs).

Coast to coast, over 5,500 new Long Life Vehicles are now delivering the mail. Yet Grumman Allied's LLV Division only began production of the vehicles in April.

For Montgomery Grummanites, this was the year of the learning curve. Close to 300 brand-new employees had to be trained, veteran Grummanites had to be retrained, and the bugs had to be worked out of a totally automated assembly line.

Uppermost in everyone's mind was achieving a rigorous, 95-vehicle-a-day production schedule by year end.

Bill Gearhart has been with Grumman for three years, previously working on Grumman Olson truck bodies. He installs the LLVs' door latches.

"In the beginning, it took two hours to drop a body onto a chassis," says Gearhart. "Now, we drop 12 bodies in an hour. Everybody works together as a team. It's one helluva good bunch of people.

"It's going pretty well right now — I'm impressed," he continues. "Some friends said to me it would take years for us to get up to speed. I have to admit I was skeptical myself at first. Well, we made it."

"We have put in a lot of overtime, and a lot of us are new to this work," says Jayneen Markle, operator of hydro-press equipment that makes aluminum detail parts for the LLV. "But we are all working toward a goal.

"We have been cross-trained — our supervisor rotates us to other machines and other areas," says Markle. "That's good. If you keep doing the same thing over and over again, you get bored — and you get sloppy."

Engineer Earl Kitchen put in 90-hour weeks from February through early September. Lately that's leveled off to 46 hours.

"I've been working program startups for this division for a long time," says Kitchen, who joined the company 16 years ago. "That's just the kind of effort a brand-new program takes. At night it's quiet, you can look at problems and take corrective action in time for the next morning.

"Now, I try to spend an hour and a half a day on the floor talking to people about how engineering can help them," he says.

"We moved back into this facility a few people at a time so we could become accustomed to what we would be doing," says Ed Hall, who installs roofs in the LLV body buildup line. "Considerable time was spent on training and helping us with any problems we had. Then we began training the new people.

"Switching from Grumman Olson to building this new truck, everything is on such a grand scale. The work itself is much easier — there isn't as much physical labor involved. We don't have to go get a truck, because it's coming right to us on the line," Hall adds.

"I feel there are more opportunities for advancement on this program. And I get real satisfaction from seeing the mail delivered in something I built, something that's going to last for a long, long time."

"I'm team captain right now," says Cliff Oden, who works in the robotic primer area. Work teams compete among one another in numbers and quality.

Oden has worked at Grumman since June, initially installing non-skid flooring.

"I never thought I would be working with robots," says Oden. "There's something new to learn every day."

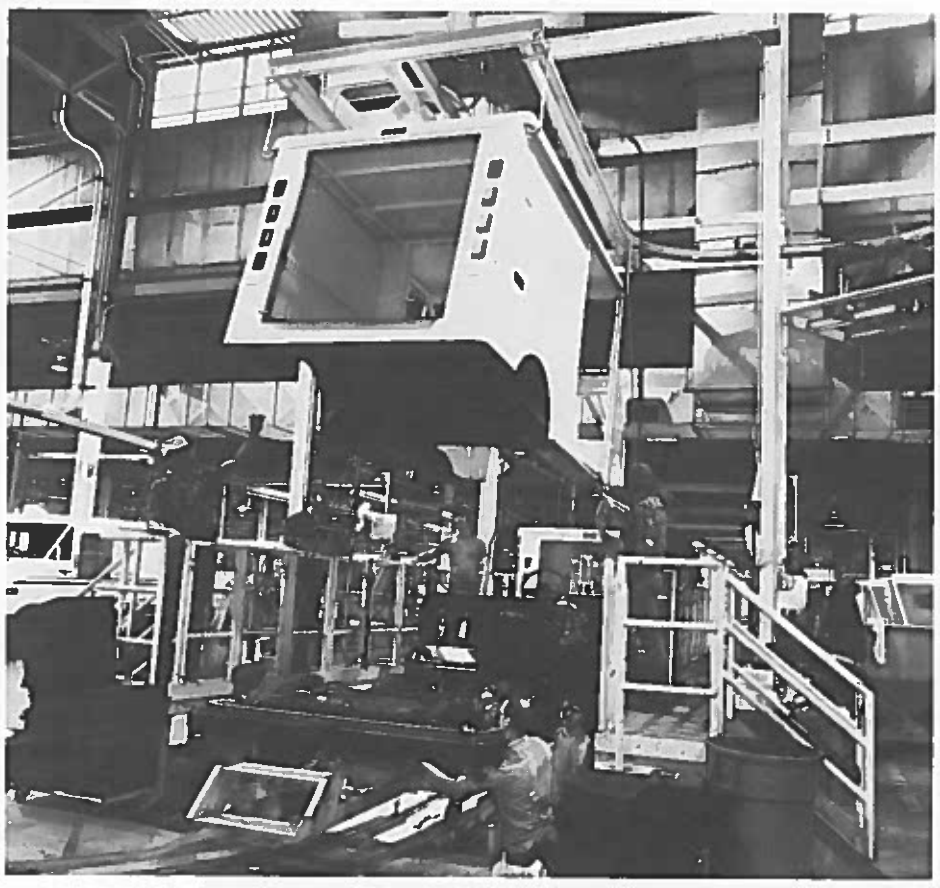
As East Coast factory service representative, Bob Overdorf has put 50,000 miles on his new Chevy, visiting Postal Service vehicle maintenance facilities.

"We've done better than most people thought we would," he says. "We're making our quota in less than a year's time. The people at Grumman put their hearts into it to make it happen.

"Everybody cooperates. There have been many long hours, long weeks. Nobody forces you to — you know the job's there to be done, you just automatically do it. Inasmuch as we've changed the products we have made at Montgomery now and then over the years, our employees have been quick to adapt," says Overdorf.

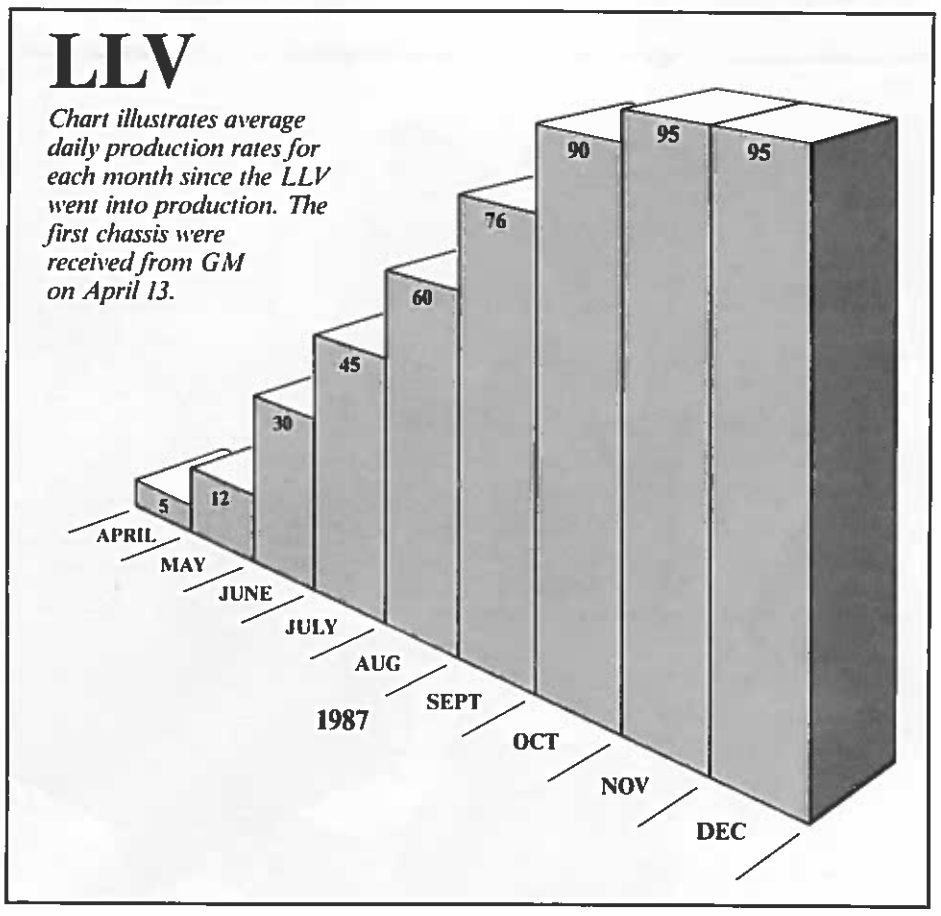
"The types of problems the Post Offices have had: a heater hose comes off...A wire lays too close to something...a leak. No big problems.

"One manager said to me, 'Bob, if all I had were LLVs, I could sit back with my feet up.' So that tells me we have a good vehicle."■

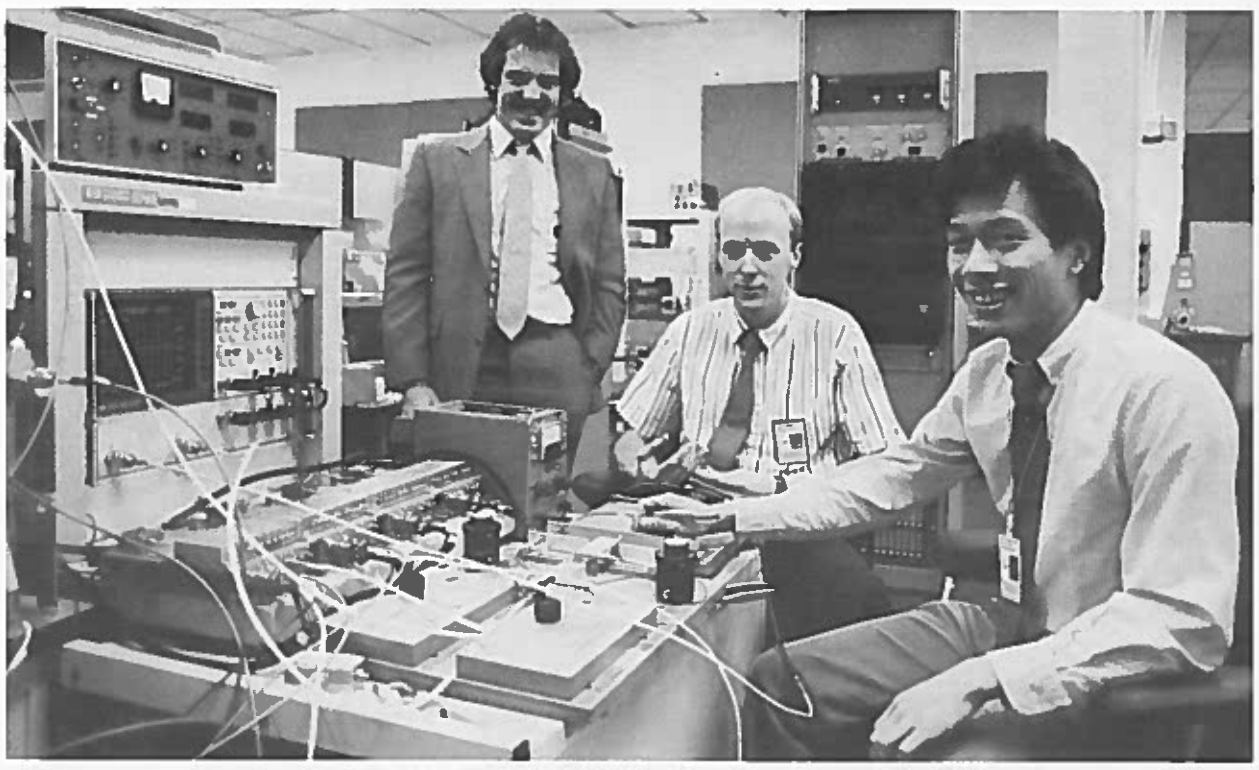


ANOTHER RECORD!!
12 OFF THE Body LINE Wed 25 Oct
THANK YOU EVERYONE
SPECIAL NOTE: 5 CONSECUTIVE DAYS AT
ABOVE ON THE FLOOR LINE
-GREAT JOB!!!

**Trucking Along.** *At left, the Long Life Vehicle's body is mated to its GM chassis, while above, a bulletin recounts a productive day. Below, Jerry Eschbach paints detail parts as they move on the conveyor.*



# *Five Technologies To Dazzle You*



**Staying Out Front.** *Above, Ed Stroud, Dan Reichel, and Philip Eng work on AEW systems in Building 14. At right, Dr. Barbara Gilmartin's expert-systems research has possible uses in both on-board diagnostics and in radar and other information-gathering systems.*

**In The Chips.** *Above, Linda Guercio makes a trial run on the voice input computer system. Below, Audrey Bijl helps separate integrated circuit dies from gallium arsenide wafers.*

## Expert Guesswork

The machines in the Building 14 lab where Dr. Barbara Gilmartin works don't look much different from ordinary office computers. But they are becoming "expert systems," able to perform simple reasoning and solve problems.

"Computers are very good at number crunching, but poor in situations where there is missing, wrong, or conflicting information," explains Gilmartin, a senior systems engineer in the displays and controls group. "An expert system tries to fill in the gaps by establishing relationships among information, from which it makes the best guesses and provides alternatives to the person using it."

Gilmartin is now working on a computer program that will perform fault diagnosis on an aircraft fuel feed system.

## Staying On Top Of AEW

"The people on this program want to be here more than anyplace else," says Ed Stroud, a systems engineer in the advanced airborne early warning (AEW) group in Bethpage. "You never hear, 'that's not my job.' You wouldn't have that if it weren't for a sense of devotion to the product."

The group has been working on a $2.9 million study contract for the Air Force's Air Defense Initiative, which is geared toward detecting stategic bombers and air- and sea-launched cruise missiles. Grumman is developing technology for the ADI's AEW aircraft.

The company has invested a lot of its own money in AEW technology. "Airborne early warning has been important to Grumman for almost 30 years," says Stroud. "We want to ensure the company is in the business for another 30 years."

## Handled With Care

As esoteric as Gilmartin's and Stroud's work is, Audrey Bijl's can be seen easily — through the lens of a microscope, that is. Bijl is a senior photolithography technician at Electronics Systems' Tachonics Corporation, Plainsboro, New Jersey. Photolithography imprints circuit designs on gallium arsenide wafers.

"It is really the most interesting aspect of the production process," says Bijl. "We see the product from the very beginning — the raw gallium arsenide wafer — to its final stage."

Gallium arsenide circuits process information much faster than silicon, and the demand for them is expected to take off in the next decade.

## Sensitive Research

At facilities in Bethpage and Irvine, California, Grumman has spent years developing an infrared mosaic starer sensor system for surveillance satellites. This technology is coming into play on the Boost Surveillance and Tracking System (BSTS), a U.S. Strategic Defense Initiative research program.

"We have to be at the technological cutting edge," says Ed Ramirez, project engineer for data processing systems on the BSTS program. "Nobody has ever attempted this before. It's quite a challenge."

## New Computer Language

"Voice input would be useful anywhere you must keep your eyes and hands busy," says Linda Guercio, a programmer for Grumman Data Systems. She has developed a prototype voice-input system, with a 650-word vocabulary, for quality control people.

"Now, the inspector must put down an item to fill out paperwork," says Guercio. "This information must then be keypunched into a computer."

The system consists of fairly simple hardware. On top of its IBM terminal is a Votan speaker. Guercio's voice, retrieved from a digital memory bank, issues commands and asks questions. Guercio says "affirmative" or "negative" instead of yes and no.

"The longer the word, the better the system works," she explains.■

# *Modernization: We're Faster And More Efficient*

The big news in modernization was the completion of Phase II of the Industrial Modernization Incentive Program (IMIP) here at Grumman. In fact, Grumman is well into the third and final phase — the installation and networking of computer controlled parts-making machinery.

IMIP is a Navy and industry program designed to reduce the production costs of systems designed for the Naval Air Systems Command. Grumman invested about $85 million and the Navy more than $9 million for IMIP. The program started at Grumman in 1982, and has affected every part of the manufacturing operation, from first cut to heat treat to subassembly automation to Quality.

"We should have complete installation of our distributed numerical control (DNC) capability by the end of this year," says Ed Donahue, director of Parts Fabrication Production Systems. Some 64 machines in Bethpage and Glen Arm, Maryland, were hooked up to computers; 21 in Building 3 were planned and all but five are in.

Also this year, Machining Operations was included under the umbrella of the Parts Fabrication Center. This brought the entire parts-making function under one directorate.

On the shop floor, two new DNC lathes — a horizontal Cincinnati and a Bullard vertical lathe — were the big additions for Building 3 in '87.

This year, the machinists in Glen Arm were brought into the labor collection system, formerly called the cost tracking system. Every time work is done to a piece of metal or part, the operator lets central computers know via a bar code reader, like those supermarket cashiers have. This tightens the work-flow and accounting controls.

Milledgeville is fine-tuning an automated, wire-guided vehicle that's part of IMIP. On command from a layup mechanic, the vehicle picks up tools from a tool storage area, delivers them to the mechanic, delivers the laid-up part and tool to an autoclave and finally, when the part is ready, returns the tool to the storage area.

In St. Augustine, a sophisticated machine called an Ultra Image III has become an important tool. This ultrasonic imager portrays, in color, the location and extent of damage from stress corrosion and fatigue to structural parts. These parts can be hidden behind other parts. Nonetheless, the Ultra Image III can analyze them. It replaces X-ray machines, which gave inspectors a black and white image that was difficult to analyze.

Though there were no modernization milestones in Stuart this year, there will be a big one next year. They plan to connect into the Grumman Engineering Manufacturing System (GEMS), and the labor collection system. They also expect to have a robot installed next year for hole drilling on parts for the E-2 program and, possibly, the V-22.

**Stretching His Limits.** *Newly promoted leadman Rich Langdon (R) has the benefit of modern new machinery in the Stretch department in Building 2 in Bethpage. Here he discusses a job with Frank Ambrosio.*

## His Career Parallels Modernization

"I was probably at the right place at the right time," says Richie Langdon, who just a couple of months ago became leadman in the Stretch Press area in Building 3 in Bethpage. The modernization of his department may not have been the direct cause of his promotion, but, he says, "it made me more conscientious; it gave me a little extra edge."

Over the past several years, this area has added all new stretch machines as part of the overall modernization program at Grumman. According to Langdon, that change has meant a lot to 25 people who work the day and night shifts there.

"There is a better atmosphere here. It's cleaner. The guys can come in and start right in on their jobs. They don't have to think about cleaning up before they start.

"They don't hesitate to say, 'Hey, if we do the job this way we will do it better.' "

Benton Park, Electronics Systems' new circuit board fabrication facility not far from Allied's Mayfield plant, opened on August 17. One of its most advanced features is the plant itself. It was built under a new military specification designed to eliminate static electricity damage to electronic circuitry.

Because one can damage a PC board with the 10,000 volt static jolt generated by walking on a rug, Benton Park has conductive, grounded floor tiles and work stations. The Grummanites there wear conductive smocks. And they put on special wrist straps to ground themselves.

While the process of producing parts has been speeded and smoothed by the computerization of machinery, Grumman also put more emphasis on computerization in general.

What's a high-tech company without a supercomputer? Grumman had one in Bethpage, the Cray 1M. But, this year, Data Systems replaced it with the more powerful Cray XM-14.

The new supercomputer has twice the memory and can process information 40 percent faster. It is already being used to capacity. There are plans to upgrade again next year. About 200 Grummanites use the Cray regularly and well over 5,000 other Grummanites have access to it through various computer systems.

Electronics Systems' Houston facility has just installed a new, Hewlett-Packard mainframe computer to process all its manufacturing and business functions such as accounting and payroll.

Data Systems also gave more zip to the computer-aided design (CAD) system used by Grumman engineers. The division replaced two mainframe IBM computers with newer models that have twice the capacity of the previous ones.

The division installed a number of Digital VAX machines, used for engineering and scientific work, around the company. This included one in Reston for the Space Station Program Support Division. Data Systems also installed some IBM systems in California for the Boost Surveillance and Tracking System and helped install an IBM processor for Melbourne Systems' two-dimensional CADAM needs.

Throughout Grumman, over 500 personal computers were purchased and put to use in '87.

Some of them were installed by the technicians of Grumman Systems Support. During 1987 they put about 450 terminals, workstations, personal computers and printers in place in Grumman sites on Long Island.■

## A System Upgrade

Mastering the Wang computer has opened a new career path for Rose Cavallo.

She joined Grumman three years ago as a clerk typist in Employment after getting an associate's degree in word processing. But she was willing to tackle new responsibilities. Today, as an administrative assistant, she spends most of her time on the Personnel Requisition System.

"The new system took away a lot of paperwork," says Cavallo. She easily updates the hundreds of reqs that cross her desk each week. She's now working on computerized reports for her group. "The computer gives me the information I want. It can tell me how many reqs were cancelled, how many were put out to Placement...."

"Our goal is to get all the divisions on the system."

# Grumman Maintains A Sterling Reputation

**FOD Free Here We Come.** *In the second half of 1987, the amount of FOD (Foreign Object Damage), found on aircraft has been reduced to almost zero. Tool control has been the target for this year's FOD Prevention Campaign. Only tools from shadowboxed kits are used on flight line aircraft. The kits provide spaces shaped the same as the tools fitting into them. This makes it easy to determine which tool is missing. In addition, each tool is inventoried and painted in a high visibility color. Horst Reickman, an E-2C plane captain at Bethpage in Building 4, empties his pockets before beginning work on the aircraft.*

## Circles Cut Big Dollars

Thirty-two Quality Circle projects implemented in 1987 saved the company more than $500,000.

The Quality Circle program is now active in four Grumman divisions: Aircraft Systems, Corporate Services, Technical Services and Melbourne Systems. Eight new circles were formed this year bringing the number of groups to 45.

The 350 leaders and members of the groups come from 60 different departments of the company. There are 20 facilitators and nine coordinators administering the groups' activities.

All of the projects worked on by the circles this year and presented to management were accepted and implemented.

**Measuring Quality.** *At the Measurement Standards Lab in Calverton, L.I., technician Frank Bondarchuck completes a calibration of an F-14A Inertial Navigation Preflight Test Set. This unit is used in production to test the navigation functions of the aircraft before flight. The calibration ensures the quality of the test equipment and certifies that measurement accuracy is directly traceable to the National Bureau of Standards.*

**Thumbs Up For Quality.** *'You need a good attitude to build a quality product,' says Frank Reinecke, leadman for Quality Control at Aircraft Systems' Stuart Operations in Florida. 'I think Grummanites have a great attitude. People in engineering, tooling, manufacturing, and production work as a team,' says Reinecke. 'The goal is a perfect product. As sophisticated as the products become, so do our quality standards. '*

## *Project Sterling Suggestions Save Grumman $11,167,560*

In 1987, 1,347 Project Sterling suggestions were approved. As a result, the company saved $11,167,560 — an increase of $4,215,858 over 1986 savings.

A total of 603 cash awards valued at $58,795 were shared by some of the winners while the remaining Grummanites split a total of 4,435 shares of Grumman stock, valued at $112,414.

In addition, 412 Individual Performance Awards were given in 1987. Each winner received five shares of stock. A total of 2,060 shares of stock were awarded, worth $50,036.

One of the top Project Sterling Winners for 1987 is John Maher of the Aircraft Systems Division. He suggested using a new computer cabling system on 1,400 computer work stations to replace the standard coaxial wiring previously used.

For saving the company $343,000, Maher was awarded 217 shares of Grumman stock valued at $4,788. "The money is going into a savings account for my children's college education," says Maher.■

**A Bright Future.** *Pictured here with his wife Patricia, daughter Kelly, 8, and son John, 6, John Maher says he will use the Project Sterling award money for his children's education.*

## *Watch For Survey*

*During the month of January, 2,500 Grummanites will be selected at random to participate in a survey on quality at Grumman. Organizational Dynamics, Inc., will conduct the survey. If you are picked, you will get a letter in the mail by January 6. Watch* News Board *for more information.*

# These Grummanites Could Teach A Civics Class

**Community Activism.** *Above, Chris Mills and friend, Daniel, attend a party sponsored by Youth Guidance. The program provides troubled youngsters with positive adult role models. At right, Emil Pavlik (C) meets with village clerk Gordon Moore and police chief Ken Greguski at Amityville Village Hall. Lower right, Kay Sewalk (L) helps serve the hungry at the Holy Trinity Church, Hicksville, Long Island.*

## Mr. Mayor

Emil Pavlik was born in Amityville, New York, and has lived there all his life. Last March, this 24-year Grummanite was elected mayor of this village of 10,000 on Long Island's south shore.

Pavlik had long been active in local politics, beginning as a teenager. Later he served on the village's board of trustees. He ran for mayor once before and lost.

"This time, I ran on a platform of balancing the village budget," says Pavlik. "The village was in the red — which is against New York State law." Since the $3 million budget passed in April, the mayor's job has become considerably less demanding for Pavlik. He usually spends each evening from 5 to 6 p.m. and Saturdays in his mayor's office, and attends trustees' meetings.

During the day, Pavlik works in Melville's Building 106. He is operations support manager—test equipment products for the Electronics Systems Division.

## A Place To Go

For the past 12 years, John Thompson has spent his Friday nights working with handicapped people at the Oxnard, California, recreation center. Thompson volunteers his time as activities coordinator. The center provides arts and crafts, games, movies, and other pastimes.

Besides Fridays, Thompson takes disabled people to sports events, the Special Olympics, and amusement parks. The city provides a van, but it's a lot of work — many of the people are in wheelchairs and require help.

"Some of my acquaintances say they envy me, that they couldn't do it," Thompson says. "I say, once you do it, it becomes natural." Thompson is a configuration data management specialist for Grumman at the Pacific Missile Test Center, Point Mugu, California.

## Weekend Friend

Chris Mills, an engineer for the Master Dimensions group in Aircraft Systems, Bethpage, spends his Saturdays with 11-year old Daniel as part of the Youth Guidance program. It is similar to the better-known Big Brothers/Big Sisters: it provides troubled youngsters with adult friends and positive role models.

"You sign a friendship pact," says Mills. "You pledge to spend three to five hours a week together, doing various activities. The organization acts as a coordinator." Mills' wife also belongs to the Youth Guidance program and spends her time with a 15-year-old girl.

Over the last two years, Mills and Daniel have traveled to New York's South Street Seaport, gone canoeing and rafting, and attended beach parties with others involved in Youth Guidance.

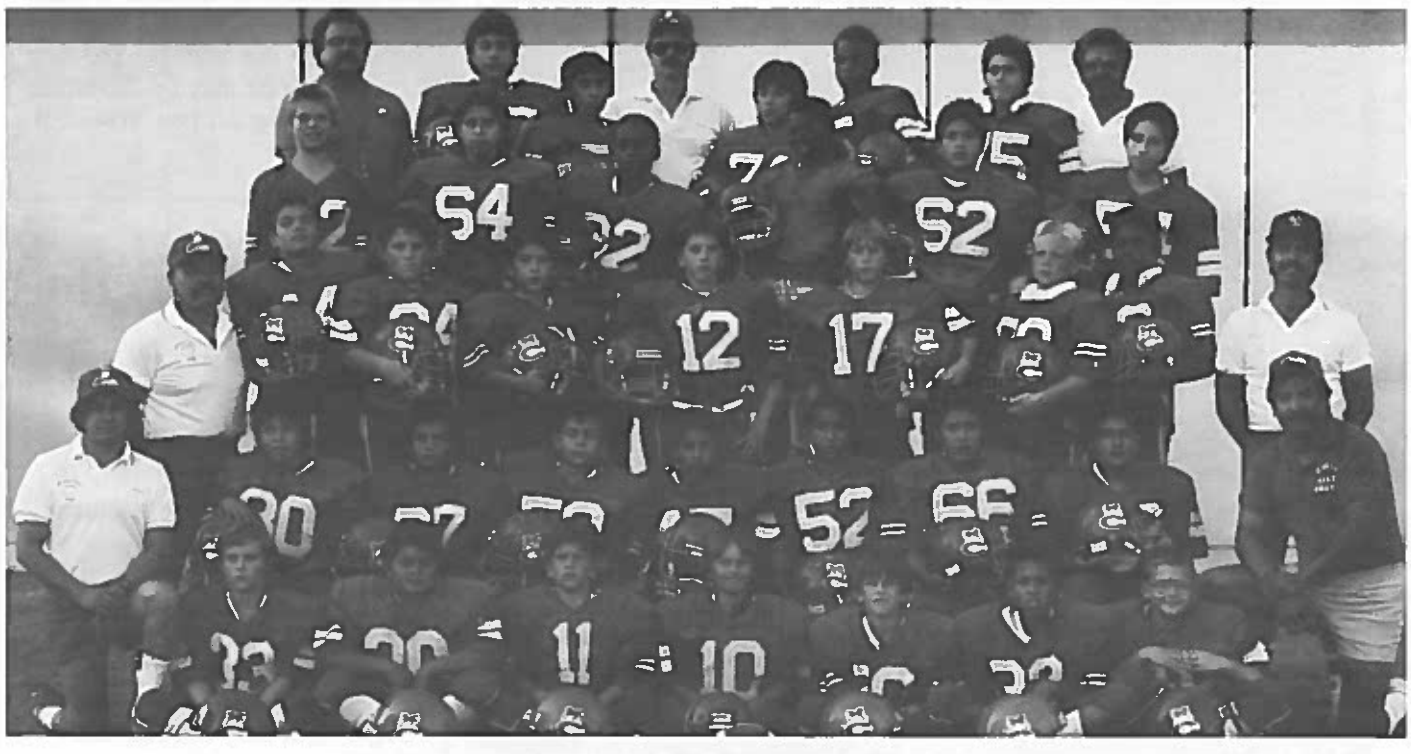
## Given From The Heart

When asked to help America's hungry and homeless, people usually give food, money, old clothes, and, perhaps, their time. Grummanite Kay Sewalk also collects two less-than-obvious things: paper bags and plastic containers.

These go to the Interfaith Nutrition Network soup kitchen at Holy Trinity Episcopal Church, Hicksville, Long Island. "Everybody who comes in gets a bag to take home," explains Sewalk, who works in distribution services in Building 25. "It could be crackers, fruit, nuts — nothing gets wasted."

At work, Sewalk leaves her car unlocked so co-workers can toss in clothing, groceries, and other needed items. She also keeps a coin box on her desk for donations. In affluent Long Island, the nutrition network runs over a dozen soup kitchens and shelters. The people they serve include elderly pensioners, ex-psychiatric patients, battered women and their children, and people whose homes have been foreclosed.

"We have the easiest job: to feed the needy," says Sewalk. "It's not up to us to judge them."■



**Valley Champs.** *In the late summer and fall, Carlos de los Santos (kneeling, left) and Eddie Calderon (kneeling, right) spend their free time coaching the Tulare (California) Colts, a boys' football team that's part of the Pop Warner League. In 1986 and 1987, the Colts won 24 straight games, winning the district championship in the Central Valley region of California. Calderon and de los Santos both work at Grumman Olson's truck bodies facility in Tulare.*

# *Sharing The Knowledge*

"The government looks very favorably on companies affiliated with colleges and universities," says Ed Wesche, administrator of professional activities at Grumman. "It's like having an insurance policy on future technology."

In 1987, Grumman had 15 university affiliate programs in which it cooperates with colleges and universities on research. For example, at Columbia University, research is taking place on fusion circuit design. At Rensselaer Polytechnic University, work is being done on CAD/CAM, computer aided design and manufacturing technology and, at Johns Hopkins University, non-destructive testing research is underway.

While professors and students take advantage of Grumman's technical expertise and get a view of the business world, Grumman can sponsor research labs in the universities and share the cost of obtaining the results of long-term research projects.

Grumman also uses its affiliation with the universities to influence the curricula and future research at the schools, hoping to recruit the students as Grumman employees. "The right curriculum can save a potential employee two to three years of on the job training," says Wesche.

To further strengthen the company's technological edge, Grummanites are members of over 200 professional societies. In 1987, 210 technical papers were authored by Grummanites for professional symposia.

In addition, 19 articles composed by Grummanites were published in trade journals.

Most of the technical presentations are submitted by Grummanites in Grumman's Research and Engineering departments. Robotics, composites, and artificial intelligence are topics most commonly discussed.■

**On Campus.** *Grummanite Frank Besanceney of Bethpage is teaching prospective assembler riveters of Aircraft Systems in Stuart, Florida. This is a 'quick start' job preparatory entry level training program sponsored by the State of Florida's Department of Education and Services Division as a joint effort between the state, company, and Indian River Community College in Port Salerno to increase the skills work force in the area.*

**Community Talk.** *Ernie Berlucchi of Aircraft Systems is giving a company overview to the Sayville Rotary Club. About 30 talks were given this year to inform the communities what goes on inside the Grumman gates and how it might affect the local economy.*

**Water Check.** *Water for drinking and for industrial use is checked by Bruce Driver of Grumman Aircraft Systems in Building 10, Bethpage, Long Island.*

# Boles And Schmitz Named Grumman Inventors Of Year

Breaking with tradition, two Grummanites with separate creations were named Inventors of the Year for 1987. They are Sol Boles of Aircraft Systems, Bethpage, and Charles Schmitz of Space Systems, Irvine, California.

Boles invented a radar implementation that provides a clearer picture of ships at sea.

"Using a special radar processing technique, a high resolution picture is created," says Boles. "The distortions normally brought about by a ship's rotational movements on the water are eliminated."

Schmitz developed an infrared focal plane module that detects engine heat from any launched vehicle, such as intercontinental ballistic missiles headed in the earth's direction. "Imagine a sugar cube," says Schmitz. "Each granule represents an eye that can see heat. You can use one eye, or the entire cube, depending on how powerful you need to be."

**Top Inventors.** *Charles Schmitz (above) and Sol Boles (below) were named inventors of the year.*

In 1987, Grumman received an estimated 32 patents on projects created and developed by Grummanites. That's five more than received in 1986.■

## Where Credit Is Due

We couldn't have produced this issue without the help of the Grumman Photographic Services. A special thanks to Grumman photographers who contributed to this issue:

Rich Breunig, Gerry Costello, Jim Ferris, Bob Sagliocca, Bob Settles, and Karl Thoma.

**Grumman World** — Vol. 6, No. 22, December 18, 1987. Published twice a month for active and retired employees of Grumman Corporation. 1111 Stewart Ave., Bethpage, N.Y. 11714. W.B. Jones, Vice President-Public Affairs.

**Norine Lyons**
*Director - Corporate Publications*
*575-3720*

**Kathleen Housley**
*Editor — 575-3293*

*Associate Editors*
**Bob Sample** — *575-5118*
**Susan Vassallo** — *575-8999*
**John Vosilla** — *575-5119*

**Bernadette Gately**
*Editorial Assistant — 575-4334*

# *Thousands Of Grummanites Hit The Books*

## A Two-Way Reimbursement

John McCourt will graduate in May 1988 from Adelphi University with a master's in business administration. Over 3,500 courses taken this year by Grummanites were covered by Grumman's tuition reimbursement program.

McCourt is a raw-chemical buyer in the Central Procurement — General Commodities department of Aircraft Systems. "I concentrated on financial management in school to get a better understanding of the commodities market when determining what strategies should be taken in purchasing chemicals," says McCourt.

"I have to keep up with where the best place to buy the chemicals is, whether they should be imported, and what the supply and demands are for the chemicals so I can judge if the company is getting them at a fair price," says McCourt.

"By paying for my education, Grumman has enabled me to do the job I have much better," notes McCourt. "The degree has also provided the opportunity for me to advance in the company."

**A Solid Backing.** *With tuition reimbursement from the Grumman Corporate Training department, John McCourt earned his master's in business administration.*

**You Do It Until It's Right.** *James Runco Jr. and Mike Alestra practice riveting during an 80-hour basic aircraft sheet metal course offered through the Product Training department at Grumman.*

## Product Training In Skills & Systems

In 1987, 1,335 Grummanites attended skills training courses. These classes cover the fabrication, assembly and repair skills required in both electrical and structural manufacturing.

Also this year, 643 Grummanites were trained by the product training department in systems operations, integration, maintenance and testing of both aircraft systems, subsystems, and ground support equipment.

Carl Gailbraith is an assembler riveter on the E-2C aircraft in Bethpage who has taken classes in fiberglass repair and riveting. "You take as many classes as you need to get the job done right," says Gailbraith. "Some are two-hour courses and some are two weeks."

Often classes are taken mainly to increase one's capabilities. But some courses are required by the Navy for certification to work on a particular aircraft.

### *Hitting The Books*

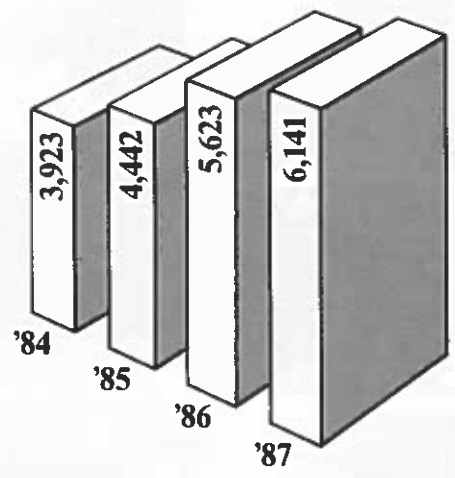
| Year | Courses Taken | Money Spent |
|---|---|---|
| 1984 | 2,380 | $1,113,767 |
| 1985 | 2,739 | $1,396,574 |
| 1986 | 3,239 | $1,878,036 |
| 1987* | 3,459 | $2,299,667 |

*1987 figures are estimated.

*Source: Grumman's Corporate Education and Training department. Grumman Allied and Grumman St. Augustine Divisions are not included.*

### *Corporate Training*

Total number of students by year



**Practicing What Was Preached.** *Carl Gailbraith uses the skills he was taught in his riveting class on the E-2C.*

## A Smart Fellow

"Grumman has given me a great education," says Allison Otto, "and I hope to put what I've learned back into Grumman."

In 1987, Otto received a master's degree in computer science from Pratt Institute. She is one of 11 Grummanites to complete master's degrees this year as part of Grumman's fellowship program.

Qualified employees earn master's degrees in computer science; advanced mathematical science; and systems, mechanical, electrical and aeronautical engineering.

Otto used to be an industrial engineer; she now works in the Quality/Statistical-Automated Systems Department in Bethpage. "I always wanted to be a systems engineer," says Otto. "My degree opened up the doors for a new career."

**A Fellowship Scholar.** *After being chosen to participate in Grumman's fellowship program, Allison Otto earned her master's degree in computer science.*

**This special issue of *Grumman World* is dedicated to all 34,340 of us who contributed to Grumman's success in 1987.**

**GrummanWorld**
A22-GHQ
1111 Stewart Avenue
Bethpage, N.Y. 11714

Bulk Rate
U.S. Postage
Paid
Hicksville, NY
Permit No. 1110

GrummanWorld
December 1987

# 1987 Annual Report For Grumman People